LONDON: Printed for H. Clements at the Half-
Moon, and W. Lowndes at the Printers-Arms, in St Paul's
Church-yard; and D. Brown without Temple-Bar.

PHILOSOPHICAL TRANSACTIONS.

Giving Some

ACCOUNT

OF THE

Present Undertakings, Studies, and Labours

OF THE

INGENIOUS,

In Many

Considerable Parts of the WORLD.

VOL. XXVIII. For the Year 1713.

LONDON:

Printed for *D. Brown* in *Exeter Exchange*, *H. Clements*, at the *Half Moon*, and *W. Lunys* at the *Princes-Arms*, in St. *Paul's Church-yard*, MDCCXIV.

BRITISH MUSEUM
NATURAL HISTORY.

TO

Sir *Isaac Newton*, K^t.

PRESIDENT,

And to the

Council and Fellows

OF THE

Royal Society

OF

LONDON,

Instituted for the

Advancement of *Natural Knowledge*;

THIS

Twenty Eighth VOLUME

OF

Philosophical Transactions

IS

HUMBLY DEDICATED

BY

Hans Sloane, R. S. Secr.

PHILOSOPHICAL TRANSACTIONS.

For the Year MDCCXIII.

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I. *Prob-*

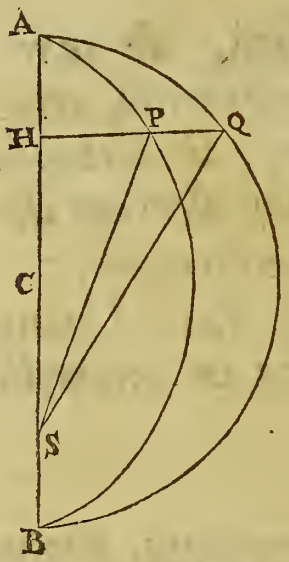
I. *Problematis* Kepleriani, *de inveniendo vero Motu Planetarum, areas tempori proportionales in Orbibus Ellipticis circa Focorum alterum describentium, Solutio* Newtoniana ; à D. J. Keill, *Astr. Prof. Savil.* Oxon. *& R. S. S. demonstrata & exemplis illustrata.*

KEPLERUS primus demonstravit, Planetas non in Orbibus Circularibus, sed Ellipticis, deferri; Solemq; in Ellipseos focorum uno situm ea ratione circumire, ut Radius à Planeta ad Solis centrum protensus, semper verrat Areas Ellipticas, quæ temporibus quibus describuntur sunt proportionales.

Divinum hoc sagaciſſimi *Kepleri* Inventum, exactiſſimis *Tychonis Brahe* Obſervationibus debetur; & tanto magis eſt ſuſpiciendum, quòd illius ope, Univerſale motuum leges, totiuſq; Mundani Syſtematis Philoſophiam feliciſſime patefecerit Dominus *Newtonus*.

Cum itaq; tali lege moveantur circa Solem Planetæ, quo ipsorum loca in proprijs Orbitis ad datum tempus determinentur, necesse est ut solvetur Problema quod sequitur.

Invenire Positionem rectæ, quæ per datæ Ellipseos focum alterutrum transiens, abscindat Aream motu suo descriptam, quæ sit ad Aream totius Ellipseos in ratione data.



Sit nempe Ellipsis A P B, cujus focus alteruter S. Invenienda est positio rectæ S P, quæ abscindat Aream trilineam A S P, ad quam Area totius Ellipseos eandem rationem habet, quam tempus Periodicum Planetæ Ellipsim describentis, ad aliud tempus datum; quâ inventâ dabitur punctum P ubi planeta ad tempus illud datum versatur. Vel sit A Q B semicirculus supra Ellipseos axem majorem descriptus, ducenda est per S recta S Q abscindens Aream A S Q, ad quam Area totius circuli est in eadem ratione: si enim ex Q demittatur in Axem perpendicularis Q H, Ellipsi occurrens in P, ducta S P dabit Aream Ellipticam quæsitam; & punctum P erit locus Planetæ ad datum tempus. Est enim semisegmentum Ellipticum A P H ad semisegmentum circulare A Q H, ut H P ad H Q, hoc est, ut area totius Ellipseos ad aream totius Circuli; sed est triangulum S P H ad triangulum S Q H in eadem ratione P H ad Q H: Adeoq; Area A S P est ad Aream totius Ellipseos, ut area A S Q ad aream totius Circuli. Unde si habeatur methodus secandi in datâ ratione Aream circuli, rectâ ductâ per datum punctum S, facile erit hac ipsa ratione secare Aream Ellipticam.

Ipsi

Ipſi *Keplero*, qui primus Problema propoſuit, nulla innotuit Methodus directa computandi locum Planetæ ex dato tempore; ſed illi neceſſe fuit, per ſingulos gradus ſemicirculi A Q B progrediendo, ex dato arcu A Q, quam vocat Anomaliam Excentri, tam tempus per aream A S Q, quæ Anomaliæ mediæ eſt proportionalis, quam angulum A S P, hoc eſt locum Planetæ, ſeu Anomaliam coæquatam huic tempori reſpondentem, calculo eruere.

Cum itaq; difficilis fuit hujus Problematis ſolutio, Aſtronomi ad alias tranſiverant Hypotheſes, fingendo punctum aliquod circa quod motus foret æquabilis, ſeu tempori proportionalis, & exinde datâ Anomaliâ mediâ, coæquatam determinabant. Sed computus hiſce hypotheſibus innixus, obſervationibus non congruere deprehenſus eſt: Itaq; Geometræ varias adhibuerunt approximationes, quibus ex datâ Areâ A S Q tempori Analogâ, angulus A S P, hoc eſt Planetæ locus, quam proxime eliciatur. At horum omnium facillima, & ad Praxim maxime expedita, mihi videtur eſſe illa methodus quam tradit Dominus *Newtonus* in *Principiis*, *pag.* 111 & 112. *Edit. 1mæ.* quæ fere ſimilis eſt ei, qua ex æquationibus affectis extrahunt Radicem Analyſtæ; & quidem tanto magis eſt æſtimanda, quod non ſolum exhibeat Planetarum loca, quorum orbitæ ad Circuli formam proxime accedunt, ſed eadem fere facilitate inſervit etiam Cometis, qui in orbitis maxime excentricis moveantur.

Hanc itaque methodum in gratiam Artificum, qui Tabulas Aſtronomicas ſecundum veras motuum leges, & non ex fictis hypotheſibus condere volunt, hic exponendam duxi.

Sit itaq; A Q B ſemicirculus ſupra Axem majorem Ellipſeos deſcriptus, cujus centrum C, & focus in quo Sol locatur ſit S. Ducatur C Q, in quam (ſi opus ſit) productam cadat perpendicularis S F. Eſt Area A S Q = ſectori A C Q + Triang. C S Q = $\frac{1}{2}$ C Q × A Q + $\frac{1}{2}$ C Q × S F; adeoq; ob datam $\frac{1}{2}$ C Q erit Area A S Q ſemper

Fig. 2.

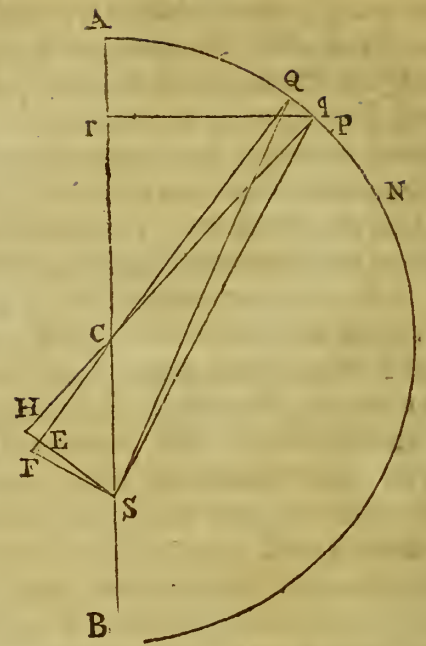


Fig. 4.

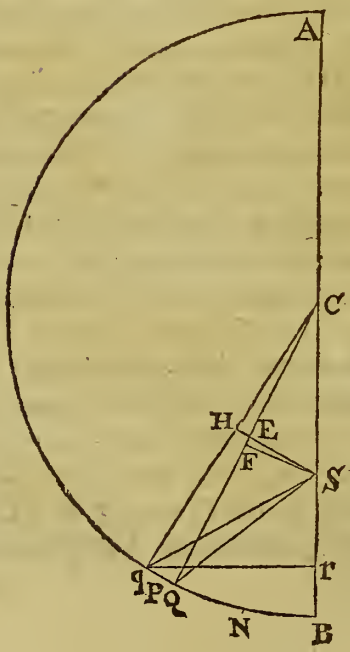
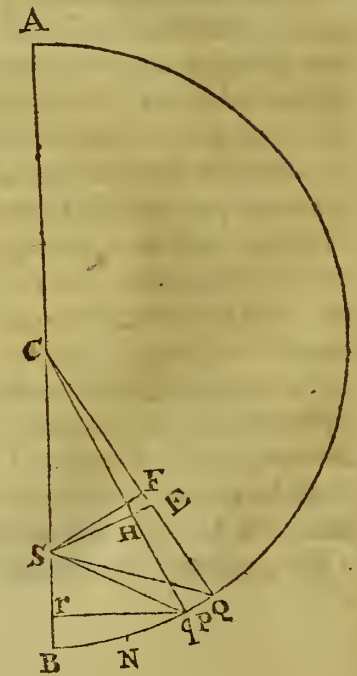


Fig. 3.



proportionalis arcui A Q + recta S F, cum scil. motus sit ab Aphelio versus Perihelium: at cum à Perihelio ad Aphelion tendit Planeta, ut in Figura quarta, fit Area B S Q = sectori B C Q — Triang. C S Q, adeoq; erit illa proportionalis arcui B Q — recta S F. Hinc si capiatur Arcus A N in Fig. 2. & 3. & B N in Fig. 4. temporibus proportionalis, erit A Q + S F = A N, & B Q — S F = B N: unde S F erit = Q N, modo arcus A N vel B N sint proportionales temporibus quibus describuntur areæ A S Q vel B S Q. Ut vero inveniatur in gradibus eorumque partibus mensura arcûs in peripheria A Q B, qui sit æqualis rectæ S F, Fiat ut C Q ad C S ita arcus graduum 57,29578 (qui æqualis est C Q radio) ad arcum quartum, qui æqualis erit C S. Sit arcus ille B. Est autem C S ad S F ut Radius ad sinum anguli S C F vel A C Q. Fiat itaq; ut Radius ad sinum anguli A C Q vel arcûs A Q, ita arcus B ad alium D; erit arcus ille D æqualis rectæ S F, adeoq; si, ad datum tempus, Area A S Q esset tempori proportionalis, esset Arcus D = N Q: & capiendo arcum N P = D, punctum P caderet in Q. Si vero Area A S Q non exacte tempori respondeat, punctum P cadet supra vel infra Q, prout Area A S Q major sit vel minor verâ Areâ quæ tempori respondeat. Sit ea A S q & in C q cadat perpendicularis S H: erit per hactenus demonstrata S H = N q. At est S F = N P, unde erit S H — S F vel S F — S H, hoc est fere H E = q P = Q P — Q q vel = Q q — Q P: Et si angulus Q C q sit parvus, erit C H : C Q :: H E : Q q :: Q P — Q q : Q q, unde C Q + C H : C Q :: Q P : Q q, cum arcus A Q est quadrante minor. At cum is est quadrante major, erit C Q — C H : C Q :: Q P : Q q. Et similiter cum arcus B Q est quadrante minor, erit C Q — C H : C Q :: Q P : Q q.

Si angulus A C Q vel B C Q parvus sit, h. e. si Planeta prope Apsides versetur, erit ut C A ± C S : C A :: Q P : Q q.

Fiat

Fiat ut CS ad CQ ita Radius R ad longitudinem quandam L, erit $CQ = \frac{CS \times L.}{R}$. Est vero Radius ad cosinum anguli A C Q ut SC ad CF vel CH (sunt enim CH & CF fere æquales) quare erit $CH = \frac{SC \times cos. ACQ.}{R}$ adeoq; QP : $Qq :: \frac{CS \times L + CS \times cos.\ A\,C\,Q}{R} : \frac{CS \times L}{R} :: L + cos.$ A C Q : L, cum arcus A Q sit quadrante minor. At si A Q sit quadrante major, erit QP : Qq :: L — *cosin.* A C Q : L.

Atque hac ratione si capiatur utcunq; arcus A Q, qui aliquantisper minor sit aut major vero, invenietur exinde arcus Qq huic addendus aut demendus, qui facit ut Area A S q sit quam proxime tempori proportionalis. Et si loco A Q capiatur arcus A q, & instituatur processus priori similis, invenietur alius A q, qui similiter eundem repetendo processum dabit alium A q, atq; sic quantumvis proxime ad veritatem accedere licebit.

Invento angulo A C q, facile habebitur angulus A S q, cum in triang. q C S dentur latera C q & C S & angulus q C S. Dabitur exinde angulus C S q cujus tangens diminuendus est in ratione axis minoris Ellipseos ad majorem, ut tandem habeatur tangens anguli A S P. Vel sic forte facilius investigatur angulus A S P. Sit F numerus qui exprimit longitudinem C S in partibus qualium C Q est 100000 : a puncto q ad axem demittatur perpendicularis q r, qui erit sinus arcus dati A q, & erit C r ejusdem cosinus & S r = summæ vel differentiæ rectarum C r, C S, hoc est S r = F ± cosin. A C q : adeoq; in rectangulo triangulo r S q, datis S r, r q, invenietur angulus r S q. Hinc si in unam summam addantur sinus Log. ang. A C q, complementum Arithmeticum Logarithmi S r, & Logarithmus rationis axis minoris Ellipseos ad majorem dabitur Tangens anguli A S P.

Tanta

Tanta autem est hujus methodi facilitas ut ea exemplis magis quam ulteriori explicatione indigeat; adeoq; licebit eam in motibus Planetæ Martis experiri, in cujus orbita, secundum Tabulas *Carolinas*, Excentricitas est ad distantiam mediam ut 14100 ad 152369, adeoque Logarithmus arcus B, qui æqualis est rectæ S C, erit 0,7244451. Erit etiam in hoc exemplo L partium 1080631 qualium Radius est 100000: Inveniendus sit angulus A C Q cum motus medius, seu arcus tempori proportionalis ab Aphelio computatus, sit unius Gradus. Quoniam C S sit hic fere pars decima ipsius C A, pono Arcum A Q esse 0,9 grad. decima scil parte minorem motu medio. Addatur sinus Logarithmicus arcus A Q ad Log. B, & fit summa 8,9205471= Log. numeri 0. 083281 qui numerus exprimit arcum æqualem rectæ S F = N P. Et si arcus A Q esset recte assumptus, foret AN—NP=AQ, & Q P =0. At hic est Q P = 0, 016719, a quo si auferatur ejus pars undecima, cum A S superat A C undecima circiter ipsius parte, restabit Q q = 0,0152; qui additus ad A Q dat A q = 0.9152, qui ne millesima gradus parte a vero A q differt. Sit secundò Arcus A N seu motus medius = 2 gr. Pono A Q= 1,83 prioris A q fere duplum, & ad ejus sinum Log. addatur Log. B: erit summa 9. 2286997 = Log. numeri 0,16931, unde erit Q P 0,00069; a quo si subducatur ejus pars undecima, fit Q q=0,00063, & A q=1,83063, qui ne decies millesima gradus parte a vero A q discrepat. Eodem modo sit motus medius seu arcus tempori proportionalis grad. 3. Fiat arcus A Q 2,745 = 1,83 + 0,915, & ad ejus sinum Log. addendo Log. B, habebitur Log. numeri 0,25392 = N P, & A N—N P = 2,74608, adeoq; Q P = 0,00108, unde Q q fere = 0,001 & A q = 2,746. Sic unica duorum Logarithmorum additione invenietur arcus A q, qui erit verus ad gradus partes millesimas.

Si jam non gradatim sed per saltum pergendo, inveniendus sit angulus A C q, cum motus medius est grad. 45. Pono arcum A Q esse graduum 40, & ad sinum ejus Logarith-

garithmicum addendo Log. B fit ſumma 0.5325125 = Log.numeri 3,4081; qui numerus à 45 ſubductus relinquit A N — N P = 41,5919, cujus exceſſus ſupra arcum A Q eſt 1,5919. Unde ſi fiat ut L + coſ. A C Q ad L ita 1,5919 ad alium, invenietur arcus Q q eſſe graduum 1.4865, adeoq; A q = 41,4865, qui non multum ſupra milleſimam gradus partem à vero differt. Verum abſq; hac proportione inveniri poteſt A q, capiendo novum arcum A Q, qui ſit aliquantulum minor quam A N — N P, eidem tamen fere æqualis; ſcil. ſit A Q = 41.50, & addendo Log. datum B ad ejus ſinum Log. habebitur alter N P = 3.35131, qui ab AN ſubductus dat 41,4869 pro novo A q: & hic arcus minore labore eruitur, & aliquanto propius ad verum accedit quam prior A q.

Poſt inventum A q correſpondentem motui medio 45°, rurſus gradatim pergendo, unica duorum Logarithmorum additione, habebitur A q, ad omnes motus medij gradus ſubſequentes. Nempe cum motus medius ſit grad. 46, pono A Q = 42,40. & addendo ejus ſinum Log. ad conſtantem B, fiet A N — N P = 42,4249; cui arcui ſi novus A Q æqualis ponatur, habebitur A q, qui ne milleſima gradus parte à vero A q diſcrepabit. Sic cum motus medius ſit 47°, pono A Q = 43,36 = priori A q + incremento iſtius arcus pro uno gradu motus medij, & addendo ejus ſinum Log. ad Log. B, fit ſumma = Log. numeri 3,6402, qui ab A N ſubductus relinquit A N — N P = 43.3598 = novo A q, qui circiter gradus parte decies milleſima á vero A q diſcrepat.

Si omiſſis gradibus intermedijs inveniendus eſſet arcus A q, cum motus medius ſit gr 100. Pono A Q grad. 96, & addendo ejus ſinum Log. ad Log. B fit ſumma = Log. numeri 5,273 unde A N — N P = 94.727. Itaque pono ſecundo A Q = 94.72 & addendo ejus ſinum ad Log. B, habebitur Log. numeri 5,285, qui ab A N ſubductus dat A N — N P = 94,715 = A q quam proxime. Similiter ſi motus medius ſit grad. 101, pono A Q eſſe 95,71,

cujus

cujus ſinus Log. ad Log. B additus dat Log. numeri 5,27563 quo numero ab 101 ſublato, reſtabit AN — NP = 95, 7244 = Aq. Atq; hac ratione, dato motu medio, ſi gradatim fiat proceſſus, habebitur angulus ad centrum per unicam tantum duorum Logarithmorum additionem; quorum unus, qui conſtans eſt, in charta ſeorſim ſervandus, quo labori ſæpius eundem exſcribendi parcatur.

Tranſeamus jam ad Orbitam alterius ſpeciei, talem nempe ut diſtantia Aphelij ſit ad diſtantiam Perihelij ut 70 ad 1; qualis fere eſt iſtius Cometæ Orbita quem Periodum ſuam annis 75½ complere primus deprehendit Sagaciſſimus Aſtronomus & Geometra D. *Edmundus Halleius*, Geometriæ Profeſſor *Savilianus*. In hac Orbita erit AC vel CQ partium 35,5, & CS 34.5 qualium SB eſt una. Et inveniendus eſt arcus Bq, cum motus medius eſt gradus pars centeſima. Quoniam media diſtantia trigeſies & quinquies circiter ſuperat diſtantiam minimam, pono BQ = 0,35, cum motus medius eſt 0,01. In hac Orbita invenitur conſtans Log. B = 1.7457133. Hic itaq; Log. ad ſinum Log. arcus 0,35 additus dat Log. numeri 0,34013, qui ad arcum 0,01 additus erit = 0,35013. Si hæc ſumma eſſet æqualis 0,35, arcus BQ eſſet recte aſſumptus: ſed differentia eſt 0,00013. Unde quoniam CB eſt ad SB ut 35,5 ad 1, multiplicetur differentia 0,00013 per 35,5, & prodibit Qq = 0,004615; unde erit arcus Bq = 0,354615, qui vix per partes tres decies-milleſimas a vero diſcrepat.

Sit ſecundo motus medius 0,02, & ponitur BQ eſſe 0,71. Ad ejus ſinum Log. addendo Log. B, fit ſumma = Log. numeri 0,68998, unde BN + NP = 0,70998, adeoq; arcus aſſumptus BQ = 0,71 nimius fuit: & eſt differentia = 0,00002, quæ ſi per 35,5 multiplicetur & productus a BQ ſubducatur, reſtabit Bq = 0,7092, vix gradus parte decies-milleſima à vero aberrans.

Sit motus medius 0,03. Ponatur BQ eſſe 1°,06: addendo ejus Log. ſin. ad Log. B, fit ſumma = Log. numeri 1,03008,

cui si addatur B N = 0,03, fit summa 1,06008, qui numerus major est quam B Q; quare si differentia 0,00008 per 35,5 multiplicetur & ad B Q addatur, erit B q = 1,06284. Similiter cum motus medius sit 0,04, pono B Q = 1°,40 & invenio N P = 1,3604; ad quem numerum addendo B N = 0,04 fit summa = 1,4004 qui superat 1,40 per 0,0004. Multiplicetur hæc differentia per 35,5 & productus 0,01420 erit æqualis Q q, unde B q = 1,41420. In hisce omnibus errores sunt admodum exigui, & raro millesimam gradus partem transcurrentes.

Inveniendus sit jam arcus B q, cum motus medius sit æqualis uni gradui. Pono B Q = 20°, & addendo ejus sinum Log. ad Log. B, habebitur Log. numeri 19,045; cui addendo B N = 1°, summa 20,045 superat 20 per ,045: Et cum in hoc casu L — cosin B Q est ad L ut 1 ad 11.5 fere, multiplico differentiam ,045 per 11,5, & productus ,5175 ad B Q additus facit 20,5175. Pono igitur secundo B Q = 20,51, & prodibit, similiter ut in præcedentibus, N P = 19.5092; cui addendo B N fit summa 20,5092, quæ minor est quam B Q: unde si differentia 0,0008 multiplicetur per 11,5, & productus 0,0092 substrahatur a B Q, restabit B q = 20,5008.

Sit deniq; motus medius æqualis duobus grad. Pono B Q grad. 30, & invenitur N P = 27,84, cui addendo gradus duos, summa 29.84 minor est quam 30; & si multiplicetur differentia 0,16 per 6,3 (nam L — cos. B Q est ad L ut 1 ad 6,3 ferè) fiet 1,008 = Q q; adeoq; hic arcus a B Q subductus dat B q = 28,982: Ut vero corrigatur B q, assumo secundo B Q = 29°, & simili processu invenietur B q = 28,9672.

II. *De Inventione Centri Oscillationis.* Per Brook Taylor *Armig. Regal. Societat. Sodal.*

Definitio.

Est Centrum Oscillationis punctum quoddam in corpore pendulo, cujus vibrationes singulæ eodem modo atq; eodem tempore peraguntur, ac si illud solum ad eandem distantiam a puncto suspensionis filo suspenderetur.

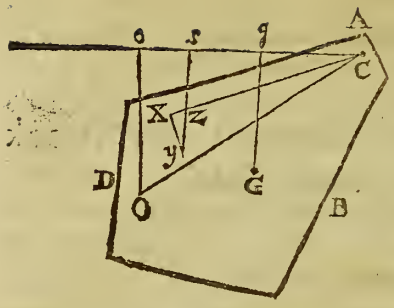
PER se vix satis manifestum est in corpore aliquo dari hujusmodi punctum: utpote cujus acceleratio debeat, (*per hanc def.*) in omnibus inclinationibus corporis penduli ad Horizontem, perinde esse, ac si a propriâ tantùm gravitate urgeatur; reliquis particulis totius corporis ejus motum proprium haud perturbantibus. Itaq; in ordine ad inventionem hujus Centri, præmittenda est una atq; altera propositio, unde constet tale punctum dari.

Prop. 1. Prob. 1

In corporis Oscillantis datâ quâvis inclinatione ad Horizontem, invenire punctum cujus acceleratio perinde sit, ac si ab ipsius propriâ tantum gravitate urgeatur.

Sit A B D corporis propositi sectio in plano ad Horizontem perpendiculari, in quo movetur centrum gravitatis G, centro suspensionis existente C. Distinguatur corpus in elementa prismatica plano A B D perpendi-

 culariа;



cularia, adeoque Horizonti ſemper parallela; ut facile patebit ex motu centri gravitatis G in plano illo A B D. Atq; ob hujuſmodi ſitum, tale elementum quodvis ſpectari poteſt tanquam punctum Phyſicum p in plano eodem A B D ad punctum z locatum. Reducatur itaq; corpus propoſitum in planum Phyſicum A B D conſtans ex hujuſmodi particulis p.

In hoc plano ut inveniatur punctum O, cujus acceleratio propria non mutatur ab actionibus particularum reliquarum, attendendum eſt ad vires particulæ cujuſvis ſingularis p in puncto z ſitæ. Nam ex hiſce viribus conjunctis oritur plani totius motus abſolutus; cujus ope datur motus puncti cujuſvis propoſiti; unde viciſſim invenitur punctum cujus motus eſt datus.

At urgetur particula p a vi propriæ gravitatis; quæ ſi partium cohæſio diſſolveretur, in dato tempore minimo, datam produceret accelerationem motûs in perpendiculari ad Horizontem z y. Ad C z duc normalem y x, & reſolvetur acceleratio z y in partes z x & x y. Ob corporis rigiditatem, tollitur vis z x per reſiſtentiam puncti C. At vi reliquâ x y trahitur ſpatium A B D in gyrum circa punctum C; & ductâ horizontali C o & perpendiculari z s, erit ea ut $\frac{Cs}{Cz}$: Nempe ob gravitatis vim datam; & ſimilia triangula x y z & s C z. Ergo vis particulæ p ad movendum ſpatium A B D eſt ut $\frac{Cs}{Cz} \times p$.

Ad has vires in unum colligendas, ſit O punctum invariabile, in lineâ ad libitum ducta & ad diſtantiam adhac incognitam C O. Tum erit vis particulæ p ad movendum

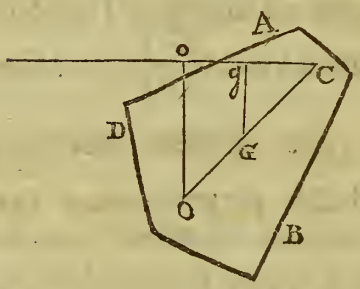
vendum punctum O, ut $\frac{Cz}{CO} \times \frac{Cs}{Cz} \times p$, hoc est ut $\frac{Cs}{CO} \times p$. Acceleratio autem, quam tribuit p eidem puncto O, erit ut $\frac{CO}{Cz} \times \frac{Cs}{Cz}$. Itaq; applicatâ vi illâ $\frac{Cs}{CO} \times p$ ad hanc acceleration em $\frac{CO \times Cs}{Czq:}$, erit quotiens $\frac{Czq:}{COq:} \times p$ particula, quæ, si in ipso puncto O fingatur moveri cum eâdem acceleratione $\frac{CO \times Cs}{Czq:}$, eundem omnino produceret motum, quem in eodem puncto O producit particula p. Hinc demum reducitur Problema ad motuum Theorema notissimum: Applicatâ enim summâ virium $\frac{Cs}{CO} \times p$ ad summam particularum $\frac{Czq:}{COq:} \times p$, erit quotiens acceleratio absoluta puncti O. Dein ductâ perpendiculari O o, & positâ hac acceleratione æquali datæ acceleration i $\frac{Co}{CO}$ ipsius puncti O, dabitur distantia CO. Sit enim $\frac{Co}{CO} = d$, & (juxta methodum *Fluxionum*) $Cs \times p = \dot{M}$, & $Czq: \times p = \dot{C}$. Tum ob CO invariabilem erit summa omnium virium $\frac{Cs}{CO} \times p = \frac{\dot{M}}{CO}$, & summa omnium particularum $\frac{Czq:}{COq:} \times p = \frac{\dot{C}}{COq:}$. Unde, applicatâ summâ momentorum ad summam corporum, erit $\frac{M}{C} \times CO = d$ adeoq; $CO = \frac{dC}{M}$. Inventis igitur C & M, per *Fluxionum* methodum inversam, dabitur C O. Q. E. I.

Cor. A centro gravitatis G ad horizontalem Co duc perpendicularem G g, & sit corpus ipsum A B C = A. Tum

Tum ex notissimâ indole centri gravitatis erit $M = Cg \times A$.
Unde est $CO = \frac{dC}{Cg \times A}$.

Prop. 2. Theor. 1.

Iisdem positis, quæratur punctum O in rectâ C G transeunte per centrum gravitatatis G. Tum erit O centrum Oscillationis corporis A.



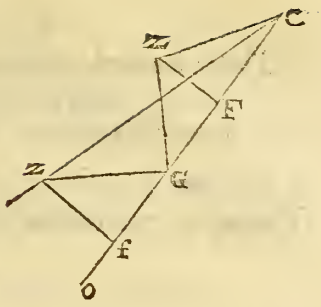
Etenim in hoc casu fit $\frac{Co}{CO} = \frac{Cg}{CG} = d$; Unde $CO = \left(\frac{dC}{Cg \times A}, \text{per Cor. Prop. 1.}\right) \frac{C}{CG \times A}$. At datur A, & dato puncto C, dantur C G & quantitas C. Unde datur C O, qualiscunq; sit corporis Oscillantis inclinatio ad Horizontem. Ideoq; *per def. & Prob.* 1. est O centrum Oscillationis corporis A. Q. E. D.

Prop. 3. Theor. 2.

Iisdem positis, sit D aggregatum omnium $Gz^2 \times p$.
Tum erit $CO = CG + \frac{D}{CG \times A}$.

Ad C G duc normalem z F, atq; erit $Czq : = CGq : + Gzq : - 2\,CG \times GF$, nempe cadente F intra C & G. At ubi F cadit in C G productâ, erit $Czq : = CGq :$

$= CGq: + Gzq: + 2CG \times Gf:$ Est ergo C = (aggregato omnium $Czq: \times p$ =) aggregato omnium $CGq: \times p + Gzq: \times p - 2CG \times GF \times p + 2CG \times Gf \times p$. At ob centrum gravitatis G, est aggregatum omnium $2CG \times GF \times p$ = aggregato omnium $2CG \times Gf \times p$. Quare est C = aggregato omnium $CGq: \times p + Gzq: \times p = CGq: \times A + D$. At enim *per Theor.* 1. est $CO = \frac{C}{CG \times A}$. Ergo $CO = CG + \frac{D}{CG \times A}$.



Q. E. D.

Cor. Hinc datur parallelogrammum $CG \times GO$. Est enim $GO = \frac{D}{CG \times A}$. At dantur A & D. Quare datur $CG \times GO = \frac{D}{A}$.

Prop. 4. Theor. 3.

Iisdem positis, si in puncto O constituatur particula physica $\frac{CG \times A}{CO}$, *quæ propria gravitate agitata Oscillet circa punctum C; spatij A B C motus perinde omnino erit, ac si agitaretur ab Oscillatione ipsius corporis A.*

Constat tam ex Natura centri gravitatis, quam *per Prob.* 1. Est enim $\frac{CG \times A}{CO}$ aggregatum omnium $\frac{Czq: \times p}{COq:} = \frac{C}{COq:}$.

Prop. 5.

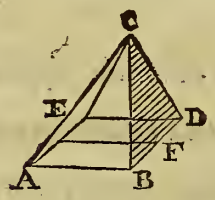
Prop. 5. Prob. 2.

Datis corporis cujuſvis magnitudine A, centro gravitatis G, & puncto ſuſpenſionis C. Invenire ejuſdem centrum Oſcillationis O.

Fit per Theor 1. inveniendo quantitatem C; vel per Theor. 2. quærendo quantitatem D.

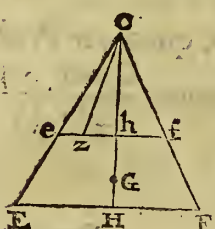
Scholium.

Ad inſtituendum calculum in caſu particulari, eligenda eſt quantitas C vel D, prout ſuggerit natura figuræ propoſitæ. Dein datâ earum alterutrâ, altera item dabitur per æquationem (*Prop.* 3.) $C = CG\,q : \times A + D$. Unde etiam dabitur pgr. $CG \times GO = \frac{D}{A}$ (*Cor. Prop.* 3.) $= \frac{C}{A} - CG\,q$:. Cujus ope, ex datis centro gravitatis & puncto ſuſpenſionis, datur centrum Oſcillationis per ſolam diviſionem. Quare in quolibet exemplo ſemper commodiſſimum erit hoc parellelogrammum primùm eruere, vel per computum ipſius D, vel per quantitatem C, ex idoneâ aſſumptione centri ſuſpenſionis.



Supereſt, ut hæc exemplis aliquot illuſtremus.

Ex. 1. Sit figura propoſita Pyramis A D C, cujus baſis eſt pgr. A D, ſitque motus centri gravitatis in plano tranſeunte per verticem C & diametrum baſis E F lateri A B parallelam.



Ad calculum commodiſſime inſtituendum, ſit ipſe vertex C centrum ſuſpenſionis. Tum ad modum *Prob.* 1. reducatur figura ad planum phyſicum trianguli Iſoſcelis C E F, in quo e f parallela ipſi EF repræſentat lineam phyſicam ex particulis p compoſitam. Sit C H = a.

H F

$HF = b$, & $Ch = x$. Tum ex naturâ figuræ erit $eh = \frac{bx}{a}$, & particula p ſita ad punctum z erit ut x; vel potius, facto $hz = v$, erit $\dot{v}\,\dot{x}$ elementi priſmatici baſis, & p erit ut $\dot{v}\,\dot{x}\,x$. Unde erit $\dot{C} = Czq : \times \dot{v}\,\dot{x}\,x = \dot{v}\,\dot{x}\,x^3 + \dot{x}\,\dot{v}\,v^2 x$. Ideoq; ſumma omnium $Czq : \times$ p in lineâ hz erit $v\,\dot{x}\,x^3 + \frac{\dot{x}\,x\,v^3}{3}$; & in lineâ ef (pro v ponendo $\frac{bx}{a}$) erit ſumma illa $\frac{6\,b\,a^2 + 2\,b^3}{3\,a^3} \times \dot{x}\,x^4$. Unde iterum capiendo fluentem, & pro x ſcribendo a, erit $C = \frac{6\,b\,a^2 + 2\,b^3}{15} \times a^2$. Eſt autem pyramis ipſa $A = \frac{2\,b\,a\,a}{3}$, & diſtantia centri gravitatis G a vertice C eſt $CG = \frac{3}{4}\,a$. Unde $\frac{C}{A} - CGq : = \frac{D}{A} = CG \times GO = \frac{3\,a^2 + 16\,b^2}{80}$.

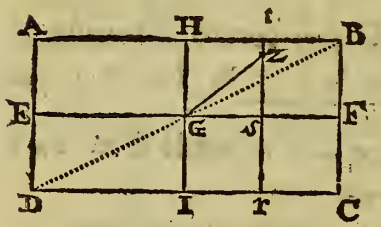
Ex. 2. Sit figura propoſita Conus rectus deſcriptus rotatione trianguli iſoſcelis ECF circa perpendiculum CH.

Hic iterum ſumpto vertice C pro centro ſuſpenſionis, & factis $CH = a$, $HE = b$, $Ch = x$, $hz = v$, ut ſupra; erit $p = 2\,\dot{x}\,\dot{v} \times \sqrt{\frac{bb}{aa}\,xx - vv}$; unde $\dot{C} = 2\,v\,\dot{x} \times xx + vv \times \sqrt{\frac{bb}{aa}\,xx - vv}$. Sit B ſegmentum circuli diametro ef deſcripti, quod adjacet Abſciſſæ $hz = v$,

& Ordinatæ $\sqrt{\frac{bb}{aa} xx - vv}$; tum erit ſumma omnium C z q : × p in rectâ h z $= 2 \dot{x} \times \frac{4a^2 + b^2}{4a^2} x^2 B - \frac{1}{2} \dot{x} v \times \overline{\frac{b^2}{a^2} x^2 - v^2}^{\frac{3}{2}}$. Et quando v = e h, erit hæc ſumma $2 \dot{x} \times \frac{4a^2 + b^2}{4a^2} x^2 B$; cujus duplum $\frac{4a^2 + b^2}{a^2} \dot{x} x^2 B$ eſt pars ipſius C in rectâ e f. Eſt autem area B ut x^2; ſit ergo $B = c x^2$; atq; pars illa ipſius C erit $\frac{4a^2 + b^2}{a^2} \times \times c \dot{x} x^4$. Unde capiendo fluentem erit $C = \frac{4a^2 + b^2}{5} \times c a^3$. Eſt autem conus ipſe $A = \frac{4}{3} c a^3$, & $C G = \frac{3}{4} a$. Unde $\frac{C}{A} - C G q : = \frac{D}{A} = \frac{3a^2 + 12b^2}{80}$.

Atq; ad hunc modum procedit calculus in alijs figuris, ubi rationes C h ad h e, & h z ad p ſunt magis compoſitæ.

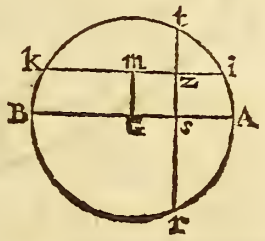
Ex. 3. Ut pateat ratio calculi quantitatis D, ſit figura propoſita parallelepipedon, cujus facies Horizonti perpendicularis, & parallela plano motûs centri gravitatis eſt A B D. Duc diametros E F & H I, & ſit altitudo elementorum p, :: & ſit t r parallela H I; & G F = a, G H = b, G s = x, & s z = v. Tum erit $\dot{D} = \dot{v} \dot{x} x x + \dot{x} \dot{v} v v$. Unde ipſius D pars in rectâ t r erit $2 b \dot{x} x^2 + \frac{2}{3} b^3 \dot{x}$: atq; iterum ſumendo fluentis duplum, erit



D

$D = \frac{4 b a^3 + 4 b^3 a}{3}$. Atqui est $A = 4 a b$; unde est $\frac{D}{A} = \frac{a a + b b}{3} = \frac{1}{12}$ D B quad.

Ex. 4. Sit ultimum exemplum in Sphærâ, cujus circulus maximus B t r, diameter A B, & centrum G. Tum ductis lineis ut in Schemate satis patent, erit $\dot{D} = G s q : \times p + G m q : \times p$. At summa omnium G s q : × p in rectâ t r est G s q : ductum in aream circuli diametro t r descripti. Item summa omnium G M q : × p in rectâ k i est G m q : × aream circuli diametro k i descripti. Unde statim constat esse D = quater fluenti ipsius G s q : in aream circuli cujus diameter est t r. Sit ergo c area circuli cujus radij quadratum est 1, & sit G A = a, & G s = x. Tum erit $\dot{D} = 4 \dot{x} x x \times c a a - c x x = 4 c a^2 \dot{x} x^2 - 4 c \dot{x} x^4$. Unde sumendo fluentem, & faciendo x = a, erit $D = \frac{8}{15} c a^5$. Est autem $A = \frac{4}{3} c a^3$. Unde $\frac{D}{A} = \frac{2}{5} a a$.

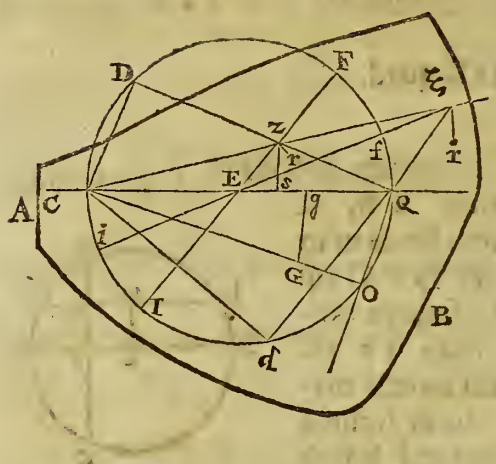


Ob affinitatem solutionis libet his subjungere Problema de inventione Centri Percussionis.

Prop. 6. Prob. 3.

Corporis cujusvis circa datum punctum rotati, invenire Centrum Percussionis ; punctum scilicet tale, ut Corpus in illud impingens, & eâdem operâ solutum a puncto suspensionis, neque huc neque illuc inclinet.

Primùm constat hoc punctum quæri debere in plano motûs centri gravitatis. Si enim corpus resolvatur in e-



lementa prismatica plano isti normalia, ferentur ea motu sibi parallelo; unde momenta ex utrâq; parte istius plani erunt æqualia; adeoq; per resistentiam factam in hoc plano, corporis punctum nullum de eo pelletur. Sit ergo planum illud A B, ad quod reducetur corpus per contractionem elementorum prismaticorum in particulas p ad puncta z sitas, ut in *Prob.* 1. In hoc plano sit C centrum rotationis; aut saltem ejus projectio facta per lineam perpendicularem in hoc planum demissam; & sit Q punctum quæsitum. Per C duc, ad libitum C ξ, in quâ sume puncta duo z & ξ, ita ut ductis z Q, & ξ Q, sit angulus C z Q obtusus, & angulus C ξ Q acutus: atque in punctis z & ξ sint particulæ p & π. Tum ad C ξ ductis normalibus z r & ξ r, quæ sint ad invicem ut C z ad C ξ, ijs repræsentabuntur velocitates absolutæ particularum p & π. At harum velocitatum partes quæ sunt in directionibus z Q & ξ Q, tolluntur per resistentiam puncti Q. Ad Q z & Q ξ duc normales C D & C d, & ob angulos æquales z C D = r z Q, & ξ C d = r ξ Q, velocitatum partes reliquæ, in directionibus ipsis Q z & Q ξ perpendicularibus, erunt ut z D & ξ d. Unde habitâ ratione distantiarum Q z & Q ξ, erunt vires particularum p & π ad movendum spatium A B in partes contrarias, ut D z × z Q × p, & d ξ × ξ Q × p. At per conditiones Problematis debent summæ hujusmodi contrariarum virium esse inter se æquales.

Ob-

Ob angulos ad D & d rectos, sunt puncta D & d ad circumferentiam circuli diametro C Q descripti. Sit istius circuli centrum E. Tum ductis E z & E ξ circulo occurrentibus in F & I, f & i, erit $Dz \times zQ = Fz \times zI = EFq: - Ezq: = EQq: - Ezq:$, & $d\xi \times \xi Q = E\xi q: - EQq:$ Quare erit summa omnium $EQq: \times p - Ezq: \times p$ = summæ omnium $E\xi q: \times \pi - EQq: \times \pi$; & terminis transpositis, summa omnium $EQq: \times p + \pi: =$ summæ omnium $Ezq: \times p + E\xi q: \times \pi$, hoc est, si p ponatur tam pro particulâ p intra circulum, quam pro particula π extra circulum, erit summa omnium $EQq: \times p =$ summæ omnium $Ezq: \times p$. Ad C Q duc normalem z s. Tum erit $Ezq: = Czq: + ECq: - QC \times Cs$. Quo valore ipsius $Ezq:$ ei substituto, & æquatione debité tractatâ, tandem invenies summam omnium $CQ \times Cs \times p =$ summæ omnium $Czq: \times p$. Unde est $CQ = \frac{\text{summæ omnium } Czq: \times p}{\text{summ: omnium } Cs \times p}$. At enim est summa omnium $Czq: \times p$ ipsa quantitas C in calculo centri Oscillationis: & si centrum gravitatis sit G, & ad C Q ducatur normalis Gg, & corpus ipsum dicatur A, erit summa omnium $Cs \times p = Cg \times A$. Unde est $CQ = \frac{C}{Cg \times A}$. Sit centrum Oscillationis O; tum per *Theor.* 1. erit $CO = \frac{C}{CG \times A}$. Unde est $Cg : CG :: CO : CQ$. Quare per O ducta ad C O perpendicularis transibit per punctum Q. Q. E. I.

III. *Epiſtola D.* Joſephi Vallettæ *Nobilis* Neopolitani, *ad D.* Richardum Waller *Armig.* Reg. Societ. Sec. *de Incendio & Eruptione Montis* Veſuvii, *Anno* MDCCVII.

Doctiſſime et Nobiliſſime Vir,

ACcepi epiſtolam tuam humaniſſimam beneficio Illuſtris Comitis Saſtesburij, cujus præſentiâ jamdiu noſtra Civitas exornatur, ob ejus inſignem nobilitatem, eloquentiam, morum ſuavitatem, & antiquam eruditionem. Pergratum mihi facis, quod litterario commercio veſtræ Regiæ ac Doctiſſimæ Societatis me dignum exiſtimes. Petis a me, Vir Nobiliſſime, ut tibi claram plenamque narratiunculam mittam, qua extremi incendii *Veſuviani* ſeriem tradam, eiuſque phænomena patefaciam, quæ tunc obſervavimus, ut ex eâ Societas, ejuſque digniſſimus Præſes *Iſaacus Newton*, acri, uti ſemper ſolent, judicio, cauſas talium rerum ad naturalis Philoſophiæ ornatum elicere valeant: Et quidem tibi, ut par eſt, obſecuturus, in explicando quodnam fuerit extremum incendium, cujus hiſtoriam requiris, plurimum hæſitavi; hujus enim montis tam frequentes, tam quotidianæ contingunt eruptiones, ut pene innumeræ ſint, nec menſis unus, ne dicam annus, prætereat, quo aliquo motu vel modo minori, modo majori excidio non ſæviat. Itaque ſi omnia ea, quæ accidunt, narrabimus incendia ejuſdem, calamus & dies deficiet, nec facile ſit mentem tuam interpretari, quæ extremum ſibi petiit deſcribi. Ex conjectura tamen moveor non tam de noviſſimo, quam de maximo incendio deſcribendo me requiſitum, quod Anno

MDCCVII. toti Europæ constabat, in quo multa sunt observata, quæ non in aliis aut prioribus aut sequentibus, rerum miracula digna quæ Regiæ Societatis tradantur examini. Primò ergo si de Scriptoribus, qui hanc rem illustrârunt, verba facere velim, catalogum longissimum tibi mittere cogerer, quo eorum nomina & opera indicarem; sed hæc tibi nota sunt, & perveniſſe potiora ad te puto: attamen de hoc quod memoro nullum scripsisse scio, tanquam de re nimis jam agitata, & nimium frequenti. Enimvero de eodem pauca hæc habeto.

Anno MDCCVII, cum jam æstas ingraveſceret, in extremis menſis Julij diebus *Veſuvianus* mons, qui diu quieverat, aliqua motus signa edere incepit, nam interni mugitus primò auditi sunt, qui in ipso montis umbilico personabant, nullo tamen adhuc dato aut fumi aut flammæ indicio. Deinde paulatim post editos sonitus fumum emittere & clarum ignem incepit, qui noctu præsertim toti Campaniæ illuceſcebat. Per varia interim intervalla bombos dedit adeò horriſonos, ut vix ipsis comparandi sint crepitus é majoribus noſtri temporis tormentis bellicis eliciti: Inde cineres veluti ex materia jam pinſatâ interius volvere perſeveravit, per plures dies noctesque eos undequaque volvens in cœlum elatos, & in varias regiones diſperſos, sicuti ventus spirabat diverſus, modo in subjecta maria, modo in Stabianos, modo in Nolanos, & Acerranos agros eos ejiciens. Nec silentio prætereunda vehemens lapidum pluvia, quæ cum hominibus, tum jumentis exitio fuit. Post hæc liquidum bituminis flumen, quod glaream vocant, é patulo ore, uti aliàs, vomere incepit, quod ignitam primo torrentis placidi formam habebat, eâ motus lentâ celeritate se deorsum moventem, quam in pice liquefacta aut denſioribus aliis obſervamus. Hæc materies, quam vitro ex arena liquefacto comparare in ferventiſſimis fornacibus, item ac vitrum ubi procedens deferbuerat, lapideam duritiem acquirebat. Illud autem obſervatu dignum putavimus, quod ſuperior hujus

materiei

materiei defervescentis superficies in lapides minutos spongiosos se vertebat, inferior verò in solidum latissimum & durissimum silicem, quo in sternendis viis alj antiquo utimur; quasi quæ proxima aeri erat illius particulas retineret immistas, inferiore parte nullo inani admisto in compactissimam massam coacta. Cæterùm inter plurima montis efferveſcentis Phænomena duo certe fuere á multa ætate non visa, & ignota: tertio namque die aut quarto, fulgetra emittere ex orificio cepit, ejusdem ferè aspectus ac quæ è Cælo interdum micare videmus, sed tortuosa & serpentia, & in eorum emissione tonitruorum bombi audiebantur, ut Cælo tonante eadem timemus: fuere ea tam spissa & frequentia, ut primo quidem putaremus pluviam casuram, usquequò animadversum est ea ex monte prodire, & obscuras nubes non ex vaporum materia, sed densitate cineris cadentis compactas. Interea IV. Nonas Augusti, quartâ post meridiem horâ, tanta ingruerat cineris densitas aerem Neapoli imminentem, ut exclusis radiis solaribus tenebræ undique sint inductæ, & quidem ea obscuritate, ut commeantes per urbem in ipsis compitis socios amicosq; agnoscere non potuerimus. Nulla nox illo die nigrior; accensis facibus si quis domo prodierat redire cogebatur, quod solum temporibus Titi accidisse ex Xiphilino accepimus: Ergo fæmineo ululatu omnia compleri, & prudentiores sacras preces D. O. M. adhibere, & exitum talis portenti omnes timidi expectare. Magistratus urbis & Antistes indixerant populo supplicationes, & ut longo ordine ad Capuanam portam, quæ montem respicit, orantes ferrent Divi *Januarii* urbis Tutelaris Sacra λείψανα. Huc ubi se contulerant inter densissimas diei tenebras, tandem circa primam aut alteram noctis horam, ex Septentrionali parte, quam minor fortasse occupârat cinerum vis, unum aut alterum sidus micare visum est, & cærulea facies Cæli apparere, & inde sensim per noctem tenebræ minui visæ sunt, quæ diem prius oculis abstulerant. Tum divino beneficio

beneficio, ea cinerum materies averſo vento é noſtra regione ad mare ſubjectum perlata eſt. Dies ortus non jam adeo illuſtris, ſed reliquiis etiam cinerum per aërem interſperſis ſemiclarus, & retinebat ——— ——— *dubiæ diſcrimina Lucis.*

Sic arva cineribus vaſtans *Veſuvius*, vomitu glareæ per plures dies exhauſtus, ita ut feré ad proximum mare nigerrimus illius torrens profluxerit, tandem poſt quindecim pene dies quieſcere viſus eſt, & circumoppidani, qui diffugerant, patriam repetentes ad ſuos lares migraverunt. *Neapolitani* demum metu levati, ut Divo *Januario*, præſenti eis ſemper in anguſtiis, memoriam perpetuam ſtatuerent, eidem numiſma cudi curaverunt ex auro argentoque, ubi Divi *Januarii* caput cum hac epigraphe: DIVO JANUARIO LIBERATORI URBIS FUNDATORI QUIETIS; & alterâ numiſmatis facie pacatus *Veſuvius* cum epigraphe: POSTQUAM COLLAPSI CINERES ET FLAMMA QUIEVIT. CIVES NEAP. INCOLUMES A. MDCCVII.

Vale, Vir clariſſime.

Neap. X. *Kal.*
Sept. 1712.

Tui Obſervatiſſimus,

JOSEPH VALETTA.

IV. *De motu Nervi tensi. Per* Brook Taylor *Armig. Regal. Societat. Sodal.*

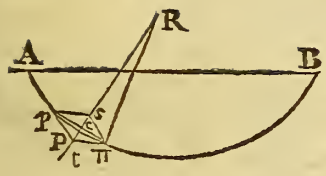
Lemma I.

Sint A D F B, & A ΔΦ B *Curvæ duæ, quarum relatio inter se hæc est, ut, ductis ad libitum ordinatis* C Δ D, E Φ F, *sit* C Δ : C D : : E Φ : E F. *Tum ordinatis in infinitum imminutis, adeo ut coincidant Curvæ cum axe* A B ; *dico quod sit ultima ratio curvaturæ in* Δ *ad curvaturam in* D, *ut* C Δ *ad* C D.

Demonstr. Duc ordinatam c ♂ d ipsi C D proximam ; & ad D & Δ duc tangentes D t & Δ θ, ordinatæ c d occurrentes in t & θ. Tum ob c ♂ : c d : : C Δ : C D (per Hypothesin) tangentes productæ sibi invicem & axi occurrent in eodem puncto P. Unde ob triangula similia C D P & c t P, C Δ P & c θ P, erit c θ : c t : : C Δ : C D (: : c ♂ : c d, per Hyp) : : ♂ θ (= c θ - c ♂) ad d t (= c t - cd.) Atqui sunt curvaturæ in Δ & D, ut anguli contactûs θ Δ ♂ & t D d ; & ob ♂ Δ & d D coincidentes cum c C, anguli isti sunt ut eorum subtensæ ♂ θ & d t, hoc est (per analogiam supra inventam) ut C Δ & C D. Quare, *&c.* Q. E. D.

Lemma

Lemma 2.

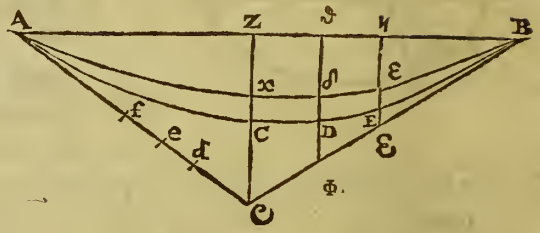


In aliquo articulo vibrationis ſuæ induat Nervus tenſus, inter puncta A & B, formam curvæ cujusvis A p π B. Tum dico quod ſit incrementum velocitatis puncti alicujus P, ſeu acceleratio oriunda a vi tenſionis Nervi, ut curvatura Nervi in eodem puncto.

Demonſtr. Finge Nervum conſtare ex particulis rigidis æqualibus infinite parvis p P & P π, *&c.* & ad punctum P erige perpendicularem P R = radio curvaturæ in P, cui occurrant tangentes p t & π t in t, iis parallelæ π s & p s in s, & chorda p π in c. Tum, per Principia Mechanicæ, vis abſoluta, quâ urgentur particulæ ambæ p P & P π verſûs R, erit ad vim tenſionis fili, ut s t ad p t; & hujus vis dimidium, quo urgetur particula una p P, erit ad Nervi tenſionem, ut c t ad t p, hoc eſt, (ob triangula ſimilia c t p, t p R) ut t p vel P p ad R t vel P R. Quare, ob tenſionis vim datam, erit vis acceleratrix abſoluta ut $\frac{P\,p}{P\,R}$. Sed eſt acceleratio genita in ratione compoſitâ ex rationibus vis abſolutæ directè & materiæ movendæ inverſè; atq; eſt materia movenda ipſa particula P p. Quare eſt acceleratio ut $\frac{1}{P\,R}$, hoc eſt ut Curvatura in P. Eſt enim Curvatura reciprocè ut radius circuli oſculatorii. Q. E. D.

Prob. 1.

Definire motum Nervi tensi.



In hoc Problemate & sequentibus pono Nervum moveri per spatium minimum ab axe motûs; ut incrementum tensionis ex auctâ longitudine, item obliquitas radiorum curvaturæ possint tutò negligi.

Itaq; extendatur Nervus inter puncta A & B; & plectro deducatur punctum z ad distantiam C z ab axe A B. Tum amoto plectro, ob flexuram in puncto solo C, illud primum incipiet moveri (*per Lemma* 2.) At statim inflexo Nervo in punctis proximis Φ & d, incipient hæc puncta etiam moveri; & deinde E & e, & sic deinceps. Item ob magnam flexuram in C, illud punctum primò velocissime movebitur; & exinde auctâ curvaturâ in punctis proximis D, E, *&c.* ea continuo velocius accelerabuntur; & eâdem operâ, imminutâ curvaturâ in C, id punctum vicissim tardius accelerabitur. Et universaliter, punctis justò tardioribus magis & velocioribus minùs acceleratis, tandem fiet ut viribus inter se ritè temperatis, motus omnes conspirent, punctis omnibus ad axem simul euntibus & simul redeuntibus, vicibus alternis ad infinitum.

Sed ut hoc fiat debet Nervus semper induere formam curvæ A C D E B, cujus curvatura in quovis puncto E est ut ejusdem distantia ab axe E ɣ; velocitatibus etiam punctorum C, D, E, *&c.* constitutis inter se in ratione distantiarum ab axe C z, D ϑ, E ɣ, *&c.* Etenim in hoc casu,

casu, spatia C x, D ♌, E ε, &c. eodem tempore minimo percursa, erunt inter se ut velocitates, hoc est ut spatia percurrenda C z, D ♑, &c. Unde erunt spatia residua x z, ♌ ♑, ε n, &c. inter se in eâdem ratione. Item (*per Lemma* 2.) erunt accelerationes inter se in eâdem ratione. Quo pacto, semper servatâ ratione velocitatum inter se eâdem ac spatiorum percurrendorum, puncta omnia simul pervenient ad axem & simul redibunt : adeoq; rectè definitur curva A C D E B. Q. E. D.

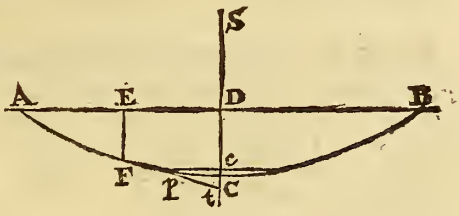
Præterea, comparatis inter se duabus curvis A C D E B, & A x ♌ ε B, *per Lemma* 1. erunt curvaturæ in D & ♌, ut distantiæ ab axe D ♑ & ♌ ♑ : adeoq; *per Lemma* 2. acceleratio dati cujusvis puncti in Nervo erit ut ejusdem distantia ab axe. Unde (*per Phil. Nat. Princip. Math. Sect.* X. *Prop.* 51.) vibrationes omnes, tam maximæ quam minimæ, peragentur in eodem tempore periodico, & puncti cujusvis motus similis erit oscillationi corporis Funipenduli in Cycloide. Q. E. I,

Cor. Sunt Curvaturæ reciprocè ut radii circulorum osculantium. Sit ergo *a* linea data, atq; erit radius curvaturæ in $E = \frac{a\,a}{E\,n}$.

Prob. 2.

Datis longitudine & pondere Nervi, unà cum pondere tendente ; invenire tempus unius vibrationis.

Extendatur nervus inter puncta A & B per vim ponderis P, & sit nervi ipsius pondus N, & longitudo L. Item constituatur nervus in positione A F p C B, & ad



punctum

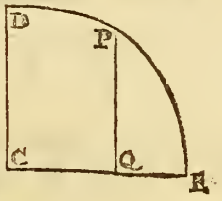
punctum medium C erige normalem C S = radio curvaturæ in C, & occurrentem axi A B in D; & sumpto puncto p ipsi C proximo, duc normalem p c & tangentem p t.

Ergo, ut in Lemmate 2, constat vim absolutam quâ acceleratur particula p C, esse ad vim ponderis P, ut c t ad p t, i. e. ut p C ad C S. Sed est pondus P ad pondus ipsius particulæ p C, in ratione compositâ ex rationibus P ad N, & N ad pondus particulæ p C, vel L ad p C; hoc est, ut P × L ad N × p C. Quare compositis his rationibus, est vis acceleratrix ad vim gravitatis ut P × L ad N × C S. Constituatur itaque pendulum longitudine G D: tum (*per Princip. Math. Sect. X. Prob.* 52.) erit tempus periodicum Nervi ad tempus periodicum istius penduli, ut $\sqrt{N} \times C S$ ad $\sqrt{P} \times L$: At (per eandem Propositionem.) datâ vi gravitatis longitudines pendulorum sunt in duplicatâ ratione temporum periodicorum; unde erit $\frac{N \times C S \times C D}{P \times L}$, vel (pro C S scripto $\frac{a\,a}{C D}$, *per Cor. Prob.* 1.) $\frac{N \times a\,a}{P \times L}$ longitudo penduli cujus vibrationes sunt isochronæ vibrationibus Nervi.

Ad inveniendam lineam a, sit Curvæ abscissa A E = z, & ordinata E F = x, & ipsa Curva A F = v, & C D = b. Tum (*per Cor. Prob.* 1.) erit radius curvaturæ in F = $\frac{a\,a}{x}$. At dato $\dot{v}$ est radius curvaturæ $\frac{\dot{v}\,\dot{x}}{\ddot{z}}$. Unde $\frac{a\,a}{x} = \frac{\dot{v}\,\dot{x}}{\ddot{z}}$; adeoq; $a\,a\,\ddot{z} = \dot{v}\,x\,\dot{x}$: & sumptis fluentibus $a\,a\,\dot{z} = \frac{\dot{v}\,x\,x}{2} - \frac{\dot{v}\,b\,b}{2} + \dot{v}\,a\,a$ (ubi additur data quantitas $-\dot{v}\,b\,b$

$\frac{-\dot{v}\,b\,b}{2} + \dot{v}\,a\,a$, ut fiat $\dot{z} = \dot{v}$ in puncto medio C.) Et hinc peracto calculo erit $\dot{z} = \frac{a^2\dot{x} - \frac{1}{2}b^2\dot{x} + \frac{1}{2}x_2\dot{x}}{\sqrt{a^2b^2 - a^2x^2 - \frac{1}{4}x^4 - \frac{1}{4}b^4 + \frac{1}{2}b^2x^2}}$

Evanescant jam b & x respectu a, ut coincidat curva cum axe, & fiet $\dot{z} = \frac{a\dot{x}}{\sqrt{bb - xx}}$. At centro C & radio C D = b descripto quadrante circulari D P E, & facto C Q = x, & erectâ normali Q P, atque arcu D P existente y, erit $\dot{y} = \sqrt{\frac{b\dot{x}}{bb - xx}} = \frac{b}{a}\dot{z}$.



Unde $y = \frac{b}{a}z$, & $z = \frac{a}{b}y$. Et facto $x = b = CD$, (quo casu etiam fit y = arcui quadrantali D P E, & $z = AD = \frac{1}{2}L$) erit $\frac{1}{2}L = a \times \frac{DE}{CD}$, atq; $a = L \times \frac{CD}{2DE}$. Sit ergo C D ad 2 D E (ut diameter circuli ad circumferentiam) ut d ad c; atq; erit $aa = LL \times \frac{dd}{cc}$. Substituto itaq, hoc valore pro a a, erit $\frac{N}{P} \times L \times \frac{dd}{cc}$ longitudo penduli isochroni ipsi Nervo. Sit ergo D longitudo cujus tempus periodicum est 1, atq; erit $\frac{d}{c}\sqrt{\frac{N}{P} \times \frac{L}{D}}$ tempus periodicum Nervi. Q. E. I. Sunt enim pendulorum tempora periodica in dimidiatâ ratione longitudinum.

Cor. 1.

Cor. 1. Numerus vibrationum Nervi in tempore unius vibrationis penduli D eſt $\frac{c}{d} \times \sqrt{\frac{P}{N}} \times \frac{D}{L}$.

Cor. 2. Ob datum $\frac{d}{c} \times \sqrt{\frac{1}{D}}$, tempus periodicum Nervi eſt ut $\sqrt{\frac{N}{P}} \times L$. Et dato pondere P eſt tempus ut $\sqrt{N \times L}$. Item conſtitutis Nervis ex eodem filo, quo caſu fit N ut L, eſt tempus ut L.

V.

V. *An Account of divers rare* Plants, *observed last Summer in several* Curious Gardens, *and particularly the* Society *of* Apothecaries *Physick Garden at* Chelsea. *By Mr.* James Petiver, *F. R. S.*

SECT. I. *English* and *European* Plants.

1 *Names.* Narrow curl'd *Hartstongue*, Ray *Hist. Plant.* p. 134. *Hyllitis* crispa *Chabr.* 557. Ic. 4. J. B. *Vol.* 3. *lib* 37. p. 757. Fig. *Lingua Cervina* angustifolia lucida ferè crispa *Bob.* Hist. *Oxon.* 557. Sect. 14. Tab 1. L. *Cervina* minor sessilis, folio circum voluto *Jonquet* Horr. Reg. *Paris.* 75. L. *Cervina* angustifolia lucida, fol. serrato *Vallot* Hort. Reg. *Paris.* 109. an *Hemionitis* crispa minor. *Muntingij* Phyt. *Tab.* 81. Fig?

Description. The *Leaves* are of a deep Green above and pale below; its middle *Rib* prominent on both sides, the *edges* lightly curl'd, and as it were serrated; they are above a Span long, and not an Inch broad. This elegant *Fern* has been long an Inhabitant in our *European* Gardens: That *Place.* accurate Botanist, *John Bauhine*, says he first saw it in the *Garden* of his old Friend Mr. *John Heitzman*, Apothecary at *Basil*, A. D. 1608. since which it hath been translated to *Paris* and *London*.

Broad curl'd *Hartstongue*.

2 *Names.* *Lingua Cervina* maxima undulato folio *Bob.* H. Oxon. 557. 5. Sect. 14. Tab 1. *Cervina* maxima, undulato folio & auriculato per basin *Morini* Jonq. H. R. Par. 75. *Pluk.* 248. Fig. 1. *Phyllitis* undulata *Muntingij* Phyt. *Tab.* 81. Fig. p. 286. c. 13. 3.

Deſcription. Its *Leaves* are of a pale yellowiſh Green, above 2 Inches broad, and a Span long; crumpled on the edges, but not ſo much as Doctor *Plukenet* figures it, neither is it notcht on the edges, and in thoſe reſpects *Munting*'s Figure is truer. Mr. *Bobart's* alſo very well expreſſes it, which I ſuppoſe they both took from the living Plants. It's auriculated at the baſe, and as it were perforated by lapping over the Stalks, in both which it differs from the *Narrow Curl'd leaved.* The Honourable Capt. *Charles Hatton*, my worthy and learned Friend, ſome Years ſince told me, he had ſeen many *curious Varieties* of this Plant in the Royal Garden at *Paris*, about the Time of that famous Floweriſt Monſ. *Morin*, who aſſured him he had raiſed them all from the Seed of the *Common Hartstongue.*

N. B.

Trifid, Curl'd *Hartstongue.*

3 *Names.* *Lingua Cervina* minor criſpa, uno pediculo trifolia *Val.* H. R. *Pariſ.* 108. *Cervina* minor criſpa, folio multifido ramoſa, *Pluk.* Tab. 248. Fig. 2.

Dr. *Plukenet*'s Figure is an Original, and taken from the living Plant, which it very well repreſents, and his *Name* expreſſes.

4 *Names.* *Manna* Graſs, *or* Edible *Cocksfoot*, Ray 1272. 6. Gramen *Mannæ* vulgò, *Boerhave* Indice *Plant* Hort. *Lugd. Bat.* p. 230. 24. Gr. *Mannæ* eſculentum *Lob.* pt. 2. p. 24. Ic. 2. *Obſ.* 13. Fig. 2. *Belg.* 25. Fig. *Adv.* 4. Gr. *Dactylon* eſculentum C. B. 8. pl. 8. *Phyt* 20. 91. *Theatr.* 118. 12. Fig. *Graminis* genus *Dens Caninus* 3. Gr. *Mannæ* Chabr. 179. Ic. 5. *Iſchemon* ſativum *ſive* Gr. Manna *eſculentum* Park. 1178. Fig. 3.

Etymology. This is generally call'd *Gramen Mannæ*, to which ſome add *eſculentum*, becauſe its eaten amongſt the *Germans*; it chiefly differs from our *Engliſh* broad-leaved *Cocksfoot* in its Culture. The *Italians* call both theſe *Capriola*, *Sanguinaria*, and *Sanguinella* (becauſe the Boys there put the tops up their Noſtrils to make them Bleed) The *Germans* call it *Scwaden.* Mr. *Ray* in his *Hiſtory* p. 1272.

N. B.

pl. 6.

pl. 6. joyns this with our *English* broad-leav'd *Cocksfoot*, viz. *the* wild *and* manured *together*. It's ſown as *Corn* in many Places of *Germany*, and uſed by them in Pottage and Meat, as we do Oat-meal. *Geſner* ſays its eat in *Sallets*. It grew very plentifully in *Chelſea Phyſick Garden* from Seed, which Dr. *Ludovicus Stockius*, a curious Botaniſt, ſent me. *Place.*

Single ſpiked *Havergraſs*.

Feſtuca ſpicâ ſimplici ariſtatâ.

The lower part of the *Spike* is more obviouſly divided into 3 or 4 looſe alternate *Locuſtæ*, each ending in a long *ariſta* or *beard*. 5

Aſarabacca. *Ray* 207. 1.

Aſarum C B. 197. 1. *Phyt* 368. 1. vulgare *Park.* 266. Fig. 1. Aſarum, *Baccaris* ſive *Baccatus* Lob. 601. Icon. 1. *Belg.* 713. Fig. 1. *Obſ.* 328. *Adv.* 261. 6 *Names.*

Grows wild in *Provence*, *Savoy*, *Switzerland*, &c. in ſhady Woods, Flowering in the Spring. Its nurs'd in many *Gardens* for its uſe in *Phyſick*. *Place.*

Thick Hoary *Rupture-wort*. Ray 214. 6. *varietas.*

Herniaria hirſuta foliis & ramulis denſè ſtipatis, fruticoſa, viticulis lignoſis, foliolis oblongiuſculis brevis, denſiſſima C B. 281. xi. *Var.* 7 *Names.*

This ſeems to differ from the *common hairy Rupture-wort*, in having more twiggy Branches, with Leaves and Flowers thicker ſet. *Chelſea* Garden is obliged to Mr. *Jacob Bobart* for this Plant, who was ſo kind as to ſend me Specimens of it ſome Years ſince. *Character.*

Roman *or* Pill-Nettle, *Rays* Engliſh Herbal *Tab.* 1. F. xi.

Urtica *Romana* Ger. 570. Fig. 1. *Jonſt.* 706. Fig. 1 *Park.* 440. Fig. 1. *Romana* ſive *Mas*, cum globulis I B. 3. l. 4. p. 445. Fig. *Chabr.* 478. Ic. 4. urens *Pilulas* ferens 1 *Dioſc.* C B. *Phpt.* 440. 4. ſem. Lini C B. 232. 4. 8 *Names.*

This differs from our *Great Nettle* in bearing its Seed in little Balls. Its found in ſome few Places of *England*, but very rare. *Character.* *Place.*

9 Common Bur-Nettle: *Ray*'s Engl. Herbal *Tab.* 1. Fig. 12.

Names. *Lappa* minor, *Xanthium* Dioſc. C B. 398. 6. Phyt. 373. 6. Lappa *Strumaria*, fol. anguloſis diſpermos, echinis bicornibus ſurſum rigentibus ad foliorum alas confertis *Alm. Bot.* 205. *Lappa* minor *Tab.* 773. Ic. 2. *Hiſt.* V. 2. p. 448. Fig.

Place. Found wild in divers Parts of *England*, but not common.

Portugal *Tho ney Bur-Nettle.* Muſ. Petiver 100.

10 *Names.* *Lappa* minor polyacanthos *ſeu* Xanthium *Luſit.* validiſſimis aculeis munitum *Almageſt. Botan.* 206. *Xanthium* ſpinoſum *Luſitanicum* Parad. Batav. 246. Fig. *prodr.* app. ſpinoſum *Luſit.* validiſſimis aculeis munitum *Element Botan.* 348. *Inſtit. Rei Herbar.* 438.

Character. Theſe *Leaves* are much more jagged and deeper cut then the *common*, and what is moſt particular at the ſetting on of theſe are 3 long yellowiſh *Thorns.* The *Flowers* and *Fruit* like the common. Its accurately figured and deſcribed in Dr. *Herman*'s Paradyſus Batavus, p. 246. as alſo in Dr. *Magnol*'s Cat. Horti Regij *Monſpelienſis.* Dr. *Tournfort* firſt diſcovered this in *Portugal*, and Mr. *Jezreel Jones* has ſince gather'd it about *Lisbon.* This elegant Plant I have only ſeen in the Biſhop of *London*'s Garden at *Fulham.*

Place.

11 *Golden Mouſear*, or *Grim the Collier.* Ray 243. 2.

Names. Auricula Muris *Hiſpanica*, alijs *Hieracium* Pannonicum fl. ſaturate croceo I B. V. 2. l. 24. p. 1040. Fig. Hieracium *Hortenſe* floribus atropurpuraſcentibus C B. 128. xi. pr. 65. 18. *Hierac.* latifolium peregrinum *Phlomoides* H. Eyſt. *Piloſella* major *Park.* parad. 300. c. 65. *Fig.* 29. 75. *ſive* Auricula Muris *Hiſpanica*, quibuſdam *Hieracium* Pannonicum *Chabr.* 324. Ic. 2.

Character. Its broad whole hairy *Leaves*, and deep Orange-coloured *Flowers*, diſtinguiſh it from all others.

Time. It Flowers in *June* and *July*, and ſometimes again in *September.* It hath many Years been an Ornament in moſt Country Gardens.

Columna's

Columna's long ſtalk'd *Hawkweed.* Ray 234. 15. 12

Hieracium montanum alterum leptomacrocaulon, *Col.* 249. c. 9. 93. Fig. montanum hirſutum minus C B. *Names.*

This is a tall ſmooth *Hawkweed*, branched into many ſmall Flowers moſt part of the Summer.

Columna's Purple *Hawkweed.* Ray 231. 5.

Hieracium *Apulum* fl. ſuave rubente *Col.* 242. Fig. c. 90. *Hieracium* Intybaceum fl. carneo *Park.* 794. Fig. 3. Intyb. x. *Clus* l. 5. p. 152. *Intyb.* fl. ex purpuro rubentibus C B. 128. 3. *Dentis Leonis* folio, fl. ſuaverubente C B. 127. 7. ramoſum *Ponæ* Ital. 13 *Names.*

Its beautiful Bluſh-coloured Flowers, which rarely happen in this Tribe (they being moſtly yellow) diſtinguiſh it from others. It grows in *Italy*, where it Flowers in *April*, but in our Gardens later. *Character.*

Rough Buſhy Hawkweed.

Hieracium aſperum ramoſiſſimum. 14

This is a buſhy Plant very much branched and matted, with ſmall yellow Flowers, each ſtanding on long naked Stalks, ſomewhat bearded and rough, not unlike the *Lang du Beauf*, but much leſs. I firſt gathered this in her Grace the Dutcheſs Dowager of *Beaufort*'s Garden at *Chelſea*, where it flower'd plentifully, as it hath ſince done in the Phyſick Garden. *Deſcription.*

Fine jagged *Smooth Sowthiſtle.* Ray 224. 3. 15

Chondrilla lutea I. B. 2. l. 24. p. 1020. Fig. *Chabr.* 317. Ic. 5. *Coronopi* aut *Cyani* facie tenuifolia lutea vinearum *Ad.* 84. *Hieracium* fol. in tenues lacinias profunde ſectas fl. luteo *Pluk.* Tab. 93. Fig. 3. *Sonchus* levis valde laciniatus *Park* 805. 5. levis in plurimas & tenuiſſimas lacinias diviſus C B. 124. 2 *prodr.* 61. 3. *Names.*

Dr. *Plukenet*'s Figure very well repreſents this Plant, which he deſign'd from a living Specimen formerly gathered in *Chelſea* Garden, where it flowered freely the laſt Summer. *N. B.*

Curl'd

16 Curl'd *Nipplewort. Lampſana* foliis criſpis.
Its lower *Leaves*, being finely curl'd, diſtinguiſh it from the common.

Hawkweed-Mary-gold. Ray 256. c. 3.

17 *Names.* *Calendula* procumbens *Hieracij* flore, capitulum inclinans ſemine adunco *Herm.* Lugd. 104. *Cichoreum* ſemine adunco H. R. *Bleſſ.* 361. *Hedypnois* annua *El. Bot.* 380. *Inſt. Rei Herb.* 478. *Hieracium* florem inclinans I. B. 2. l. 24. p. 1032 Fig. & H. fl. nutante *Chabr.* 321. Ic. 6. *Hieracium* capitulis inclinans ſemine adunco C B. 128. 1. minus alterum capitulo inclinante C. B. *Phyt.* 212. 17. *Rhagadiolus* Cæſalpini. *Hieracium* facie *Hedypnoidis* Park. 795. Fig. 1. *Lob.* 239. Ic. 1. *Belg.* 288. Fig.

Character. It reſembles the *Marygold* in bearing yellow Flowers, with longiſh rough crooked ſolid *Seed*, but none flat.

Place. It grows wild about *Baſil* and *Mompelier*, flowering in *March* and *April.*

Wart Succory. Ray 255. 5.

18 *Names.* *Zacintha* ſive *Cichoreum* verrucoſum C B. in *Matth.* 389. Fig. 9. *Chondrilla* verrucaria C B. *Phyt.* 215. 8. verr. folijs *Cichorei* viridibus C B. 130. 10. *Park.* 779. Fig. 8. *Cichoreum* verrucoſum *ſive* Zacintha *Hieracijs* adnumerandum I. B. 2. l. 24. p. 1013. Fig. *verr.* Verrucaria *Chabr.* 315. Ic. 2. Marra di Cavaliero *Italis.*

Vertues. *Calceolarius*, a very curious Apothecary at *Verona*, who ſent this to *Matthiolus*, aſſerts, that the Leaves eaten as a Sallet, will effectually take away *Warts*, and that a Dram of the Seed taken inwardly for 3 Nights together, will do the ſame. *Camerarius* ſays a certain Surgeon at *Padua* cured *Warts* in any part of the Body, by giving a Spoonful of the *Seed* powdered for 3 Days at the Moons decreaſe, by which Secret he got a great deal of Money. *Lobel* affirms, that the Juice of the Leaves outwardly apply'd will cure *Warts*, as alſo taken in Wine it helps the biting of a Mad Dog.

Place, &c. This Plant is ſaid to take its Name from *Zacintha*, now call'd *Zante*, an Iſle in the *Jonian*

Jonian Sea, where it was first discovered. Mr. *Ray* has observed it wild about *Leghorn* and *Florence.*

White *Butterbur.* Ray 261. 2. 19

Petasites minor C B. 197. 2. *Park.* 419. flore candido inodoro C B. phyt. 370. 2. albus, angulofo folio I. B. 3. l. 31. p. 568. Fig folio angulofo, *rad.* geniculata, *caule* ftriato, fl. albo *Chabr.* 513. Ic. 4 *Names.*

It differs from the *common* in being fomewhat leſs; its Flowers are white, with angular ſerrated Leaves. Mr *Ray* obſerved this Plant at the foot of the Hills between *Genoa* and *Genoa.* It Flowers in *April.* *Character.* *Place.*

White leaved *Butterbur.* Ray. 261. 3. 20

Petaſites minor folio Tuſſilaginis *Jonquet* 98 H.R. *Bleſſ.* Pluk. *Tab.* 212. Fig. 7. minor alter *Tuſſilaginis* folio *Vallot* 139. *Names.*

The Leaves of this are very white underneath like *Coltsfoot*, but more pointed. I have obſerved both theſe in *Chelſea* Garden. *Character.*

Dutch *Crupine.* Ray 331. c. 15: 21

Crupina Belgarum *Nobis.* *Centaurium* Capitatum ciliare annuum, *fol* laciniatis ſerratis H. *Bleſ.* 362. *Chondrilla* Hiſpanica *Jonſt.* 287. F. 4. purpuraſcente fl. C B. *phyt.* 215. 4. *folijs* laciniatis ſerratis, purpuraſcente *flore* C B. 130. 3. rara purpuraſcente flore, ſemine nitido deciduo *Lob.* 231. Ic. 1. *Obſ.* 116. Fig. rara purpurea *Crupina* Belgarum dicta *Park.* 786. F. 4. *Cyanus* pulchro ſemine Centaurij majoris I. B. l 25. p. 24 Fig. pulchro ſem. *Centaurij* minoris (pro *majoris*) fl. purpuraſcente *Chabr.* 341. Ic. 1. Senecio carduus *Apulus* Col. 32. Fig. c. 7. *Names.*

It's a pretty *Annual* Plant, with a purple Flower like *Saw-wort*, and ſhining ſmooth velvetty *Seeds*, which on ſhutting them in your hand, are apt to ſlip or creep out, for which reaſon the *Dutch* call it *Cruypen.* It grows in *Italy*, *Spain*, *Narbone*, and about *Mompelier*, *Character.* *Place.*

Sicilian

Sicilian *Milk-Thiſtle.*

22 *Names.* Carduus *Siculus* Acanthoides, venis albicantibus *Nobis* humilis alatus ſive *Carduus Mariæ* annuus, folio lituris obſcuris notato *Cupani* Hort. Catholici.

Character. This reſembles our *Engliſh Gray Thiſtle*, having many ſmall purple Flowers and welted Stalks; its Leaves gray below but ſmooth above, and faintly *veined* with white.

Time. We are obliged to Father *Cupani* for the diſcovery of this Thiſtle. It Flowers with us from *June* till *Auguſt:* I have as yet ſeen it only in *Chelſea* Garden.

Great *Globe Thiſtle.* Ray 383. 1.

23 *Names.* Echinopus *Chabr.* 351. Ic. 3. *major* I. B. 3. l. 25. p. 69. F. Carduus *Spherocephalus* Dod. 722. Fig. *Spher.* latifolius vulg. C B. 380. 1. *Spherocephalus* ſeu *Globoſus* major *Park.* 977 Ic. 2. *Scabioſa* Cardui folio *Sphærocephala* elatior H. *Leyd.* 539.

Place. Mr *Ray* obſerv'd this in the hilly Woods about *Viterbo.*

Great *Centaurean Scabious.* Ray 374. 1.

24 *Names.* Scabioſa *Alpina* C B. phyt. 526. x. *Alp.* maxima Lob. 537. Ic. 2. Ad. 233. Fig. Belg. 638. Fig. *Alpina* folijs Centaurij majoris C B. 270. 1. montana maxima *Park.* 487. Fig. 1.

Character. Its *Flowers* of a pale yellow, the *Leaves* like the great Centaury, and its largeneſs diſtinguiſh it from others.

Place. Mr *Ray* obſerv'd this on the top of *Thuiri* on Mount *Jura.*

Teaſell Scabious. Ray 378. 16. Var.

25 *Names.* Scabioſa *Virgæ Paſtoris* folio C B. 270. 6. *Phyt.* 527. 13. latifolia peregrina *Tab.* 160. Ic. 1. *Hiſt.* 547. Fig. 8.

Character. The Flower of this is very like the *common Scabious*, both in Shape and Colour, but the Leaves whole and ſerrated like the *Teaſell.* It Flowers in *June.*

Fine cut *Sicilian* Scabious. *Ray* 378. 13. Var.

26 *Names.* *Scabioſa* maritima *Rutæ Caninæ* folio *Bocc.* Pl. rar. 74. & 95. *Tab.* 40. & 52.

Its lower Branches lye on the Ground, with Leaves deeply cut like the *Scrophularia Rutæ Caninæ folio*, and ſtill

ſtill finer on the Stalks; its *Flowers* pale, and ſometimes bluſh. Found on the ſandy Shores about *Gaeta*. The Revd. Mr *Stoneſtreet*, a curious *Naturaliſt*, gave me a Specimen of this, which he raiſed from Seed.

Valentia *Fennel Tanſy*.

27

Coma *Valentina* Cotulæ fol. *Nobis. Buphthalmo* tenuifolio ſimile, *Chrythanth* Valent. *Cluſij* I. B. 3. l. 26. p. 125. c. 19. Fig. *Chabr.* 364. Ic. 2. *Chryſanthemum* Valentinum *Cluſij* 332. *Cotulæ* fl. nudo *El. Bot.* 396. fl. luteo nudo I. R. H. 495. *Names.*

This is like our Dogs *Camomile*, but the Flowers are naked. *Character.*

Hoary *yellow Millfoil*. Ray 347. 8.

28

Millefolium tomentoſum luteum C B. 140. 7. I. B. 3. l. 26. p. 138. Fig. *toment.* lut. *Monſpeſſulanum* & *Narbonenſe* Chabr. 367. Ic. 1. *Millefol.* luteum Lob. 748. Ic. 1. Obſ. 431. Ic. Belg. 912. Fig. *Park.* 694. Ic. 6. *Millefol.* luteum tomentoſum C B. phyt. 240. 7. *Stratiotes* Millefolia, flavo flore *Clus.* 330. Fig. *Names.*

Caſpar Bauhine gathered this in *Tyrol*, A. D. 1577: in his Journey to *Italy*. Mr *Ray* obſerved it about *Avignion* and *Aurange*; it grows alſo in *Spain*. Flowers in *June*, *July*, &c. *Place.* *Time.*

Smallage *Laſer-wort*.

29

Laſerpitium Apij folio. *Names.*

Its *Flowers* are very ſmall, and frequently at going off have but 2 bifid Petals like our *Circea*, the ſingle Stalks of each Umbell have rarely more than 3 or 4 welted Seed on them, which ripen about *July*. The Leaves ſtiff and very like *Smallage*. *Chelſea* Garden is the only place in which I have ſeen this Plant.

Small *Candy* Sheaperds Needle. *Ray* 428. 2.

30

Aniſo-marathrum Col. 90. Fig. c. 24. *Clus.* app. alt. *Pecten Veneris* tenuiſſimé diſſectis folijs, *Anthriſcus* Cauſa bonæ I. B. 3. l. 27. p. 73. Fig. *Chabr.* 392. Ic. 2. Scandix *Cretica* minor C B. 152. 4. *prodr.* 79. 2. *Cret.* ſimilis C B. *Names.*

Phyt. 265. Scandix *Cretic.* ſimilis *ſeu* Anthriſcus *Park.* 916. Fig. 3.

Uſe. It's a great provoker to Venery, and often eaten in Sallets. It grows not only in *Candy* but in divers barren *Place.* Places about *Mompelier*, and has there, both the taſte and ſmell of *Aniſeed.*

Garden Skirrets. Ray 442. 1.

31 *Names.* Elaphoboſcum *Dioſcoridis* Col. *Phyt.* 89. Fig. opt. *Siſarum* Lob. 710. Ic. 1. Obſ. 408. Fig. Belg. 866. Siſarum *Germanorum* C B. 155. 1. multis *Chabr.* 401. Ic. 5. & 6 I. B. 3. l. 27. p. 153. Fig. *Siſer* vulgaris *Park.* 945. F. 1.

Place. Theſe are *cultivated* in many Gardens, for the ſake of their *Roots.*

32 Broad upright *Mountain Madder.* Ray 481. 2.

Names. *Gallium* montanum latifolium ramoſum H. *Leyd.* 268. *El. Bot.* 94. I. R. H. 115. fl. albo majus, ſive *Mollugo* montana *Park.* 564. 3. Mollugo Dod. 354. mont. latifolia ramoſa C B. 334. 1. *Rubia* Sylvatica lævis *Chabr.* 546. Ic. 4. I B. 3. l. 36. p. 716. c. 7. Fig.

Character. It's ſmoothneſs and growing upright diſtinguiſh it from others. It grows in the hilly Woods about *Aken* or *Aix La Chapelle*, &c. flowring in *April.*

33 *Clivers* with warty Seed. *Ray* 485. 3.

Names. *Aparine* ſem. *Coriandri* Saccharati *Park.* marg. 567. 2. fructu verrucoſo *Jonq.* 14.

Character. It differs from the *common* in being leſs, with warty *Seed* like *Coriander Comfitts*, but they do not ſtick like *Burrs* as the reſt. I have gathered this at the Phyſick Garden at *Amſterdam*, and alſo at *Chelſea.*

Purple jagged *Selfheal.* Ray 551. 2.

34 *Names.* *Brunella* 2. fl. purpureo *Clus.* l. 4. p. 43. folio laciniato C. B. 261. 2. minor fol. lacin. C. B. phyt. 503. 3. *Symphytum* petreum Lob. 475. Ic. 1. Obſ. 251. Fig. Belg. 559. Fig.

Place, &c. Like the *common*, but with jagged Leaves. It grows wild about *Paris.*

White

White jagged *Selfheal.* Ray 551. 2.

35 *Names.* *Brunella* fol. laciniato fl. albo H. R. *Par.* *Prunella* fl. albo parvo, fol. laciniato I. B. 3. l. 30. p. 429. Fig. fl. albo parvo, folijs in medijs caulibus profunde diſſectis *Chabr.* 474. Ic. 1. *Prun.* 2 non vulg. albo flore *Clus.* l. 4. 43.

Character. It differs from the laſt only in having a *white* Flower.

Spaniſh tuberoſe *Catmint.* Ray 550. 6.

36 *Names.* Cataria *Hiſpanica* ſupina *Betonicæ* folio tuberoſa radice *El. Botan.* 171. I. R. H. 202. *Mentaſtrum* tuberoſa radice I. B. 3. l. 28. p. 227. *Fig.* Chabr. o. *Ment:* 2 tuberoſa radice *Clus.* Pan. 585. F. 2. *Hiſt.* 33. quoad *deſcr.* ſed 3 ſecund. *Icon. Mentha* tuberoſa radice C B. 227. 7. *Phyt.* 430. x.

Character. Its *Spikes* of *Flowers* are thick ſet in ſtriated hairy whorls.

Caſſidony or *French* Lavander. *Ray* 514. 1.

37 *Names.* Stæchas *Tragi* 70. Ic. *ſive* Stichas *Chabr.* 424. Ic. 4. *Lob.* 429. Ic. 2. *Belg.* 516. *Obſ.* 234. *Arabica* vulgo *dicta* I. B. 3. l. 28. p. 277. Fig. brevioribus ligulis *Clus* 344. purpurea C B. 216. 1. *Phyt.* 408. 1. vulgaris *Park.* 67. Fig. 1.

Place. This famous Medicinal Plant grows in many Parts of *Spain*, *Portugal* and *France*, where it Flowers in *April* and *May.*

Bætick *Germander.* Ray 526. 3.

38 *Names.* Teucrium *Bæticum* Clus. *Hiſp.* 229. Fig. *Bæt.* & Creticum *Clus* Chabr. 429. Ic. 3. I. B. 3. l. 28. p. 291. c. 68. F. *Teucrium* fruticans *Bæticum* ſive 3 *Clus.* 348. Fig. peregrinum folio ſinuoſo C B. 247. 4. *Phyt.* 471. 3.

Character. It's a ſpecious handſome Plant in *Gardens*, and eaſily diſtinguiſh'd from others by its large blue Flowers, and Silver like Leaves underneath.

Place.

Venice *Hour Mallow.* Ray 1067. 7.

39 *Names.* Alcea *Veneta* Tragi 925. Fig. *Veſicaria* C B. 317. 7. phyt. 634. 8. Dod. 657. Veſicaria *Veneta* H. Ox. 533. xi. S. v. Tab. 18. peregrina ſoliſequa *Lob.* 656. Ic. 2. *Belg.* 803. Fig *Obſ.* 374. Fig. *per.* ſoliſeq. Veneta *quibuſdam* dicta *Chabr.* 300. Ic. 5. Ketmia *Veſicaria* vulgaris E. B. 83. I. R. H. 101. Malva *Horaria* vulgò. *Ray* 1067. 7.

Character. This *Mallow* has its Name from the ſhort duration of its Flower, which it keeps open but an Hour or two, *Place.* and that about Noon when the Sun ſhines. It grows in *Italy* and *France*, flowering in *May*, and ſoon after fades.

Prickley headed *Candy* Crowfoot. *Ray* 582. 2

40 *Names.* Ranunculus echinatus *Cret.* Park. 331. F. 6. *Pon.* Ital. 41. *Ranunculus* ſtellatus echinatus *Cret.* CB. 180. 2. H. Ox. 440. *Ranunculus* ſtellatus paluſtris echinatus I. B. 3. p. 858.

This is a low Plant with angular *Leaves*, ſmall *Flowers*, and large prickley *Leaves*.

41 *Names.* White *Pyrenean* Plantain *Crowfoot.* Ray 558. 1. *Ranunculus* montanus folio *Plantaginus* C B. 180. 4. *mont.* longifolius C B. *Phyt.* 327. 30. *Plantaginis* folio *Park.* 334. 3. Fig. 337. 3. *Pyreneus* albo flore *Clus.* app. alt. Fig. *Pyren.* fol. ſublongis non laciniatis, albo flore *Chabr.* 466. Ic. 4. I. B. 3. p. 848.

Character. Its *Leaves* like *Water Plantain*, but ſmaller, with a white Flower in the Spring. It grows wild on the *Pyrenean* Mountains.

Double White Mountain Crowfoot. *Ray* 589. 2. Var.

42 *Names.* Ranunculus *albus* flore pleno *Park.* parad. 216. 4. *mont.* albus fl. pleno *Eiuſd.* 219. Fig. 9. *albus* major alter *Geſn.* Hort. 295. *albus* flore denſo I. B. 3. p. 844. folio Aconiti, fl. albo multiplici C B. 179. 6. *hort.* albus multiplici flore C B. *Phyt.* 330. 40. niveus polyanthos *Lob.* 667. Ic. 2. *Belg.* 814. Fig. *Obſ.* 381. Fig.

Character. This has long been nurs'd in many *Gardens*, and is known from others by its very double *white Flowers*, with angular jagged *Wolfsbane* Leaves.

Dioſcorides his Orpine. *Ray* 1016. 1.

43 *Names.* Telephium *Dioſcoridis* Imperati 665. Fig. *legitimum* Imper. 7. *Clus.* 67. repens folio non deciduo C B. 287. 6. *Helianthes* ſpecies rara, comâ inflexâ in *Heliotropio* Chabr. 101. Ic. 6. I. B. 2. l. 13. p. 20. Fig.

Place. It grows in *Narbone* on ſteep Rocks and Precipices, flowering in *June* and *July*.

Pliny's

Pliny's *Cucubale*. Ray 682. 6. 44

Cucubalus *Plinii* Lugd. 1429. *Cucubalum* quibuſdam vel *Alſine* baccifera I. B. 2. l. 15. p. 175. c. 42. Fig. *Plinij* quibuſdam; *Alſine* baccifera fr. nigro *Chabr.* 124. Ic. 3. *Alſine* repens major *Clus.* l. vi. Fig. 183. repens *Clus.* Hiſp. 414. Fig. *Alſine* ſerpeggiante *Durant.* 19. Fig. *Names.*

It grows in ſhady Hedges in *Italy*, *France*, *Spain*, *Germany* and *Holland*, flouriſhing all Summer, and in our Gardens in *July* and *Auguſt*. *Place.*

Ivy *Toad Flax*. Ray 759. 36

Cymbalaria C B. 306. *Phyt.* 615. Italica *Jonſt.* 530 F. 6. Cymbalaria *Italica* Hederacea *Park.* 682. Fig. *Ital.* Hederaceo folio *Lob.* 615. Ic. 1. *Obſ.* 337. Fig. Belg. 333. Fig. *Cymbalaria* floſculis purpuraſcentibus I. B. 3. l. 35. p. 685. c. 7. Fig. *Cymb.* vel *Cymbalaris* Capni genus alterum quibuſdam *Chabr.* 538. Ic. 1. *Linaria* Cymbalaria dicta. *Ray* 759. 36. Hederaceo folio glabro ſ. *Cymbalaria* vulgaris *El. Bot.* 139. I. R. H. 169. 45 *Names.*

Mr *Ray* obſerved this on the Walls of *Baſil*. It grows alſo very common in *Italy* on moſt Walls, Rocks, *&c.* It's ſaid to be found wild upon Thatch'd Houſes in the *North*, and in *Lancaſhire* plentifully. *Time.*

Sage Figwort. *Ray*'s Engliſh *Herbal*. Tab. 35. Fig. xi. 46

Scrophularia Scorodoniæ fol. H. *Ox.* 482. 5. Sect. v. T. 35. *Scrophularia* Meliſſæ folio. *El. Bot.* 136. I. R. H. 166. *Names.*

Dr. *Sherard* obſerved this Plant by the Rivulet ſides, betwixt the Port and *St. Hilary* in the Iſle of *Jerſey*, and Mr *Edw. Lhwyd*, that Curious Naturaliſt, near the Sea Shore about *St. Ives* in *Cornwal*. *Place.*

Yellow Figwort. *Ray* 765. 6 47

Scrophularia flore luteo C B. 236. 5. *Prodr.* 112. Fig. opt. *Phyt.* 447. 5. deſcr. *Park.* 611. 6. *Galeopſis* altera luteo pallida *Park.* 608. Fig. 4. *Scrophularia* lutea, magna, amplis folijs I. B. 3. l. 30. p. 422. c. 23. Fig. montana maxima *Col.* 191 c. 7. annua folio Lamij, fl. luteo *H. Ox.* 482 2. S. v. T. 8. *an* Lamium *Pannonicum* alterum ſive exoticum *Clus.* 38. Fig. *Pann.* 595. Fig. *Names.*

Columnæ

Place. *Columna* found this in *Italy*. It Flowers and Seeds in *May* and *June*.

48 Red, *Nettle Figwort*. Ray 765. 5.

Name. *Scrophularia* folio Urticæ C B. 236. 4. flore rubro C. B. *Phyt*. 446. 4. *Camer*. l. B. 3. l. 30. p. 422. c. 32. Fig. peregrina *Cam*. Hort. 157. Fig. *Park*. 611. 4. *an* Scrophulatia *Cretica* 2 Clus. 210.

Place. This grows on the Walks of *Pisa*, and elsewhere in *Italy*.

49 Portugal *Elder Figwort*.

Names. Scrophularia *Sambuci* fol. capsulis maximis *H. Ox*. 483. 6. *Scrophularia* fl. rubro, luteo, vario pulchro *Virid. Lusit*. Pluk. Tab. 313. F. 6. *Lusit*. fl. luteo eleganti, folijs incisis *Schuyl*. H. Leyd. 70. peregrina altera *Park*. 611. Fig 5.

Mr *Parkinson* had the Seed of this Plant out of *Italy*.

Small *Rocket* Figwort.

50 Scrophularia *Resedæ* folio *Nobis*. fl. variegato minor,

Names. *Ruta Canina* dicta *H. Ox*. 483. 9.

Character. These *Leaves* are glaucous or blewish, and deeply cut like our *Base Rocket*. Its Flowers many and small, reddish and white. *Chelsea* Garden is the only Place I have as yet observed this pretty Plant, where it Flowers from *May* to *July*.

51 Hoary *Sea Medick*. Ray 965. 26.

Names. *Medica* marina *Cam*. Hort. 98. Fig. 28. *Clus*. 243. Fig. *Lob*. 2. p. 38. Ic. 1. *Belg*. 2. p. 43. Fig. *Ad*. 318. Fig. *Park*. 1114. 4. *Tab*. 510. Ic. 2. *Hist*. 212. F. marina S. *Trif*. Cochleatum marinum *Chabr*. 165. Ic. 5. *Cochleata* polycarpos, capsulâ spinosâ minimâ perennis incana maritima *H. Ox*. 144. 15. lutea *Gnaphalitea* marina nostra é littore *Veneto* Donati 63. Trifolium *Cochleatum* maritimum C B. *Phyt*. 660. 24. *Coch*. mar. tomentosum C B. *pin*. 329. 7. *Trifolium* marinum *Gesn*. Hort. 285. *Cochleatum* marinum *Ger*. 1029. Ic. 2. *Jonst*. 1203 Fig. 3. Trif. *Coch*. mar. sive *Medica* marina l. B. 2. l. 17. p. 383. c. 65. Fig.

That

That curious Botaniſh *Carolus Cluſius* found this in the Mouth of the *Tagus* near *Lisbon*, flowering in *December* A. D. 1564. It grows alſo on all the *Mediterranean* Shores. *Place.*

Bobarts *Smooth Tunns.* 52

Medica turbinata glabra *Jac. Bobart. an* Medica *Cochleata* major dicarpos, fructu capſulâ turbinatâ planâ H. *Ox.* 153. 5. S. 2. Tab. 15. 5. *Names.*

The *Figure* of the uppermoſt Cluſter of *Parkinſon's* 9 ſorts of *Medica* p. 1116. very well reſembles this Fruit, but I have not as yet obſerved ſo many as he repreſents, *viz.* 6 together. Theſe Leaves are finely ſerrated; thoſe about the Root are ſome roundiſh, others broad, and towards the uppart part pointed; the *Fruit* has about 6 twirls wholly ſmooth, and flat at each end, often ſingle; ſometimes 2 or 3 together, rarely more. I am obliged to Mr *Jacob Bobart*, Botannick Profeſſor of the Phyſick Garden at *Oxon*, for the firſt Specimens of this elegant Plant, who hath ſince ſent its Seed to *Chelſea*, where it now grows. *N.B.* *Deſcription.*

Camerarius h's *Moon Claver.* Ray 922. 5. 53

Auricula Muris *Camerarij* Hort. 24. Tab. 8. l. B. 2. l. 17. p. 387. Fig. *Chabr.* 167. Ic. 3. H. Ox. 181. 4: *Anthyllis* leguminoſa marina *Bætica* vel *Cretica* S. Auricula Muris *Camerarij* Park. 1093. Fig. 2. *Loto* affinis ſiliquis hirſutis circinatis C B. 333. 4. *Medicago* Vulnerariæ facie *Hiſpanica* El. Bot. 328. I.R.H. 412. *Trifolia* ſiliqua falcata ſimilis C B. *Phyt.* 661. 29. *Names.*

The Reverend Sir *George Wheeler*, that curious Botaniſt, found this on the Iſle *Salamine* near *Athens*. *Place.*

Yellowiſh *Meadow Trefoil.* Ray 943 8.

Trifolium pratenſe hirſutum majus, flore albo ſulphureo ſeu ocroleuco. *Ray* 9438. *Synopſ.* 134. 3. *edit.* 193. 3. Trifolium *Lagopoides* annuum hirſutum pallide luteum ſeu ocroleucum *H. Oxon.* 141. 12. Sect. 2. Tab. 12. 54

The

Character. The peculiarity of this *Clover* is in having yellowiſh *Flowers*, eſpecially when they firſt appear. Its *Leaves* plain, hairy, ſmall, and round below, but above more pointed, ſtanding on long hairy Stalks. It Flowers in *Time and Place.* *June* in Thickets and dry Paſtures. Mr *Ray* firſt obſerv'd this about *Geneva*, and has ſince been found in *England*. Teaſell headed *Trefoil*. Ray 945. xi. *Pluk.* Tab 111. F. 4.

55 *Names.* *Trifolium* ſtellatum glabrum *Jonſt.* 1208. 6. *Trifolium* capitulis *Dipſaci* quorundam. *Ray* 945. xi.

Diſtinction. Its Leaves ſtand on long Stalks, are not ſerrated, but ſoft and roundiſh; the Flowers fleſh coloured, not large, each guarded with 2 pointed ſmall green Leaves; theſe turn into 5 Star-pointed *Burry heads* like *Eryngo* or *Teaſell*, but much ſmaller. *Place.* Mr *Johnſon* firſt diſcovered this the 10th of *June* 1633. in *Dartford* Salt Marſh. I have alſo gathered it about *Tilbury Fort* againſt *Graveſend*. Mr *Ray* obſerved it about *Meſſina* in *Sicily*, and Dr. *Balam* at *Tangier*.

56 *Names.* *Small knotted Trefoil*, with large Seeds. *Ray* 945. 14. Trifolium *nodiflorum*, glomerulis mollioribus & rotundioribus ſem. magno *Ray* Cat. Angl. *Tr.* dilutè purpureum glomerulis florum oblongis, ſine pediculis caulibus adnatis *Cat. Cantab.* parvum hirſutum, fl. parvo dilute purpureo in glomerulis oblongis ſemine magno, *Ray* 945. 14. *deſcr.* opt. *Syn.* 134. 7. *edit.* 194. 8. *an* Trifol. cujus caules ex geniculis glomerulos oblongos proferunt I. B. 2. l. 17. p. 387. Fig. *Chabr.* 165. Ic. 5. *Ray* 946. 16?

Deſcription. From a ſingle white *Root* it ſends forth divers branch'd *Stalks*, in barren Places ſcarce a Span long, trailing on the Ground; but in fatter Soil much longer. Its Leaves dark, green, hairy and whole; thoſe next the Root ſmaller, bluntiſh, and ſometimes cordated; towards the top they are longer and pointed, ſtanding on ſhorter footſtalks. The *Flowers* ſmall, *Fleſh coloured*, and quickly Fade, growing at the ends of the Branches: Theſe turn into hard thick ſet *heads*, in barren Ground roundiſh, in better

better Soil oval; they have always one, and sometimes 2 Leaves at each head, which when full ripe, are streakt, hairy, and swell, each *Husk* ending in 5 little Thorns, in which lies one large yellowish *Seed*. It grows in barren Pastures. *Place.*

Knotted Trefoil with rough heads.

57 *Trifolium* flosculis albis in glomerulis oblongis asperis, cauliculis proxime adnatis, *Ray* Syn. edit. 2. p. 134. 9. *Trifolium* parvum rectum flore glomerato cum unguiculis I. B. 2. l. 17. p. 378. Fig. *Chabr.* 162. Ic. 3. *Ray* 946. 15? *Names.*

This has whitish *Flowers* and rough *heads*, ending in 5 stiff points. It grows with the *Sesamoides Salamanticum* near the Mill at *New Market*, and in divers other Places. *Character.*

Knotted Trefoil with soft round heads. *Ray* 948. 24.

58 *Trifolium* cum glomerulis ad caulium nodos rotundis, *Ray* cat. Angl. & *Syn.* 134. 8. *edit.* 194. 9. supinum cum glomerulis ad caulium nodos globosis floribus purpurantibus *Ray* 948. 24 *Pluk.* Tab. 113. Fig. 5. *Names.*

It's *Leaves* crenated, *Flowers flesh coloured*, with soft *heads*, in which it differs from the last. *Thomas Willisell* and others have found this about *London*, and Mr *Ray* at *Sax-Mundam* in *Suffolk*, as also abroad, *viz.* about *Messina*. *Character.*

Mompelier *Star Trefoil.* Ray 945. 12.

59 *Trifolium* stellatum C. B. 329. 1. *Phyt.* 662. 35. *descr.* Prodr. 143. 1. *descr.* stellatum hirsutum *Jonst.* 1208. 5. *Trifolium* stellatum *Monspelienſium* Lob. illustr. 154. *Park.* 1105. Fig. 1. *Trifolium* stellatum purpureum *Monspel.* I. B. 2. l. 17. p. 376. Fig. *Chabr.* 161. Ic. 4. H. *Ox.* 143. 9. S. 2. 13. Fig. *Names.*

Its soft starry *heads*, with very long and limber rayes, distinguish this from other *Trefoils*. It *Flowers* and *Seeds* in *April* and *May*. *Jonston* says he saw this in Mr *Tradescants* Garden, flowering in *May*, who brought it from *Formentera*, an Isle in the *Mediterranean* near *Ivica*. Mr *Ray* has observ'd it to grow plentifully at the foot of *Character.*

Mount Veſuvius, as alſo about *Meſſina* and *Mompelier*. Mr *Jezreel Jones* gathered it about *Lisbon*, and Dr. *Salvadore* has ſent it me from *Barcelona*.

60 *Names.* Salamanca *Strawberry Trefoil.* Ray 947. 19. *Trebol de Prados* Salmanticenſibus.

Trifolium pratenſe folliculatum C B. 329. 2. *Salmanticum* Ger. 1021. Ic. 3. pratenſe *Salmanticum* Cluſij 247. Fig. *Hiſp.* 474. Fig. *Park.* 1111. Fig. 3. *Jonſt.* 1189. Fig. 3. Trifolium *folliculaceum* ſeu *Veſicarium* minus purpureum *Chabr.* 163. Ic. 1. I. B. 2. l. 17. 379. Fig. *Fragiferum* ſ. *Veſicarium* floribus nitidis rubellis *Ray* Syllog. 255. Trifol. *diſpanicum* Tab. 522. Ic. 1. *Hiſt.* 221. Fig.

Character. Its ſmall bright red *Flowers* diſtinguiſh it from *common* Strawberry *Trefoil.* It grows in the Meadows about *Salamanca*, and Flowers all the Summer. Mr *Ray* obſerv'd this elegant *Trefoil* about the Port of *Leghorn* and *Place.* elſewhere in *Italy* in the borders of Fields. Mr *Jacob Bobart* formerly ſent me a Specimen of this, which now grows in the Phyſick Garden at *Chelſea*.

Silver *Moon Cytiſus.* Ray 973. 17.

61 *Names.* *Cytiſus* 3 Cornutus *Tab.* 1094. Ic. 1. *Hiſt.* 798. F. 7 Corn. *Ger.* 1124. Fig. 7. *Jonſt.* 1305. F. 7. incanus ſiliquis falcatis C B. 398. 1. Cytiſus *Galeni* creditus, *Maranthæ* cornutus *Park.* 1471. Fig. 1. *Maranthæ* Matth. *Lob.* 2. p. 46. Ic. 2. *Belg.* 2. p. 53. Ic. 1. *Obſ.* 503. Ic. ſiliquâ incurvâ folio candicante *Chabr.* 78. Ic. 3. I. B. 2. l. 11. p. 367. Fig. Medicago trifolia fruteſcens incana *El. Bot.* 328. I. R. H. 412. *Trifolium* fruteſcens incanum ſive Medica frut. incana, ſiliquâ falcatâ planâ *H. Ox.* 158. 4.

Character. It's an elegant Shrub, with ſilver *Leaves*, and tuffs of yellow *Flowers* at the tops of its Branches, which turn into ſmooth *crooked Pods*. The Heart of this is black like *Ebony*, and of it the *Turks* make Handles for their *Place.* Sabres, and the Prieſts of *Patmos* turn them into Beads to pray with. *Bartholomew Marantha* found this on a certain Hill near *Naples*. *Honorius Bellus* obſerved it alſo

also in *Rhodes*, but more plentifully in a little Island near it call'd *Astachida*. Mr *Ray* saw it about *Bæia* near *Naples* in *Italy*. In our Gardens it Flowers in *June*, and bears *Pods* towards *Autumn*.

Smooth round leaved *Cytisus*. Ray 973. 13. 62

Cytisus Ger. 1121. Fig. 2. *Jonst.* 1304. Fig. 2. alter *Lob.* 2. p. 46. Ic. 1. *Belg.* 2. p. 52. Fig. 2. alter minor & vulgatior *Adv.* 388. Fig. glaber siliquâ latâ *Chabr.* 80. Ic. 2. I. B. 1. l. xi. p. 373. Fig. glabris foliis subrotundis *Cytisus* pediculis breviſſimis C B. 390. 1. *Cytisus* v. rotundifolius Tab. 1095. Ic. 2. *Hist.* 798. Fig. *Names.*

The roundness of its *Leaves*, very short Stalks at the top of the Branches, and *smooth Pods*, distinguish it from others. It makes a beautiful Hedge in *Gardens*, and Flowers there in *June*. Mr. *Ray* observed this on the Sea Cliffs near *Salernum* in *Italy*. *Character.* *Place.*

Scarlet, square codded *Peaſe*. Ray 966. 1. 63

Pisum flore coccineo, siliquâ quadrangulâ *Nobis*. Lotus *tetragonolobus* Cam. *Hort.* 91. Fig. 26. *Lotus* quadripinnatis siliquis *Park.* 1101. Fig. 2. *Lotus* ruber. siliquâ angulosâ C B. 332. 13. Lotus *siliquosa*, fl. fusco tetragonolobus I. B 2. l. 17. p. 358. Fig. *Chabr.* 157. Ic. 5. Lotus *siliquosus* fl. rubro *Clus.* 244. Fig. Pann. 763. Ic. Lotus *oligoceratos* tetragonolobus annuus *Cretic.* fl. rubro seu holosericeo coccineo H. Ox. 176. 7. *Lotus* siliquâ quadratâ *Jonst.* 1198. Fig. 3. *Trifolium* siliquosum rubrum C B. *Phyt.* 668. 60. *Names.*

Its deep Scarlet *Flowers*, and square welted *Pods*, distinguish it from all others. Mr. *Ray* observ'd this on the tops of the Hills about *Messina*. Dr. *Salvadore*, a very curious Botanist, hath sent it me from *Barcelona*. *Character.* *Place.*

Shining *Cranes-bill*. Ray 1060. 25. 64

Geranium *alterum* mont. saxatile rotundifolium Col. 137. Fig. c. 41. Geranium *annuum* rotundifolium mont. saxatile lucidum H. *Ox.* 512. 6. S. 5. Tab. 15. Geranium *lucidum* Chabr. 488. Ic. 5. I. B. 3. l. 30. p. 481. Fig. C B. *Names.*

Phyt. 637. 10. *descr.* Geranium *lucidum* saxatile C B. 318. 15. *Park.* 707. Fig. 9. Geranium *saxatile* Cam. *Hort.* 66. saxat. ugroscopelon *Thal.* 44. Fig. 5.

Names. *Camerarius*, *Columna*, and *Thalius* first discovered this Abroad, and Mr. *John Goodyer*, as *Parkinson* testifies, found it first in *England*, where it grows on shady Walls and old Ruins, *&c.*

Place.

65 Knotty *Cranes-bill.* Ray 1060. 29.

Names. *Geranium* 5, nodosum *Plateau* Clus. 110. Fig. 5. & 6. *Ejusd.* ex sent. C B. Geranium *nodosum* C B. 318. 12. *Park.* 704. Fig. 2. Geranium *magnum* folio trifido I. B. 3. l. 30. p. 478. Fig. Geranium *magnum* fol. trifido fl. purpurascente *Chabr.* 487. Ic. 6.

Mr. *Ray* observ'd this in the Hedges in *Dauphiny*. Mr *Archergen* brought this to Mr. *Jacob Bobart*, assuring him he found it wild on the Mountains in *Cumberland*.

Character.

66 Rose *Cranes-bill.* Ray 1061. 32.

Names. *Geranium* 7, aimatodes *Clus.* 102. Fig. hæmatodes *Par.* parad. 229. 8. Fig. 227. 6. Geranium *Gruinum* sive *Gruinale* hæmatodes supinum rad. reptrice *Lob.* 660. Ic. 24. *Geranium* sanguinarium *Ger.* 799. Fig. 2. *Jonst.* 945. Ic. 2. *Tab.* Vol. 2. p. 449. Fig. *Icon.* 774 Fig. 1. Geranium *sanguineum* maximo flore C B. 318. 4. *Phyt.* 637. 7. H. Ox. 514. 17. Geranium *sanguineum* sive *hæmat.* crassâ radice I. B. 3. l. 30. p. 478. Fig. fl. purp. *Chabr.* 488. Ic. 1. *Sanguinaria* radix & *Geranium* 3. Tragi 348.

Character. Its cut *Leaves* and spacious large red *Flowers* distinguish it from other sorts. It is frequent in the *North* on high

Place. Heaths and hilly Woods, flowering in *July* and *August*.

67 *Dale's* deep cut *Rose Cranes bill.*

Names. Geranium *hæmatodes* folijs majoribus pallidioribus & altiùs incisis *Ray* Synops. *edit.* 2. p. 219. pl. 7.

Place. Its *Leaves* are larger, paler, and more deeply cut than the *common*. Mr. *Dale* found this on the Banks of the *Devils Ditch* towards *Reche*.

Rose

Roſe Cranes-bill, with a pale veined Flower. 68

Geranium Hæmatodes *Lancaſtrenſe*, flore eleganter ſtriato *Ray* 1061. & *Syn.* 156. 12. *edit.* 2. p. 218. 8. *Names.*

This is a lower Plant, and ſmaller than the *Common*; its Flowers are of a pale bluſh with deeper coloured Veins, as in the *ſtreak'd* Roman *Cranes-bill*. We are beholden to Mr. *Tho. Lawſon* for the firſt Diſcovery of this pretty Plant, who found it on the ſandy Shores of *Walney Iſle* in *Lancaſhire*. *Character.* *Place.*

Dusky *Cranes-bill*. Ray 1062. 35. 69

Geranium *Batrachoides* pullo flore *Jonſt.* 942. Ic. 3. *Batrachoid.* hirſutum fl. atrorubente C B. 318. 2. *Phyt.* 636. 5. *Geranium* pheum *ſeu* pullo flore *Cluſ.* 99. F. *Pann.* 416. Ic. *Chabr.* 487. Ic. 5. I. B. 3 l. 30 p. 477. Fig. *Geranium* pullo flore *Park.* 704. Fig. 3. *Names.*

Its blackiſh Flower diſtinguiſhes it from all others. It grows on the *Stirian* Mountains and *Flowers* there in *June*. *Character.*

Dusky *Cranesbill* with reflex'd *Flowers*. Ray 1063. 36.

Geranium 13 *Tabern.* 151. Fig. 13. Geranium *maculatum* Ejuſd. Icon. 616. 1. *Geranium* maculatum *ſive* fuſcum *Ger.* 799. Fig. 1. *Ionſt.* 945. Ic. 1. Geranium *montanum* fuſcum C B. 318. 8. *Phyt.* 637. 9. Geranium *pheum* ſive *fuſcum*, petalis reflexis H. Ox. 515. 18. *Ger.* pheum fl. reflexo I. B. 3. l. 30. p. 477. F. Chabr. 487. Ic. 4. 70 *Names.*

Mr. Ray found this on the top of *Mount Jura* near *Thuiri*, who ſays its more hairy than the laſt, and is rather Purple then dusky; it differs alſo in having its Petals or Flower-leaves turn Back. *Place.*

Roman veined *Cranesbill*. Ray 1063. 37. 71

Geranium *Romanum* verſicolor *ſive* ſtriatum *Park.* parad. 227. 7. & 229. 6. Fig. opt. H. *Oxon.* 516. 24. *Names.*

Its pale Fleſh-coloured *Flowers*, with fine ſtreakt Veins, diſtinguiſh it from all others. This pretty Plant has been an Ornament in many old Gardens ever ſince *Parkinſon's* time, *viz.* about the Year 1620.

Brindis

Brindis *Cranesbill*. Ray 3. p. 512. 17.

72 *Names.* *Geranium* ſupinum *Botrys* folio, *acu* ſurſum ſpectante *Bocc.* Muſ. *Plant.* 145. Tab. 109.

The *Leaves* are hard, curl'd and jagged like the *Oak* of *Jeruſalem*; it ſpreads on the Ground into divers Branches, a foot about; the *Bill* grows upright, and is half a Span in length. *Signior Boccon* found this in a Meadow two Miles from the City *Brindis* in the *Kingdom* of *Naples*.

Round, *Mountain Valerian* of *Lyons*. Ray 3. p. 242. 5.

73 *Names.* *Valeriana* maxima *Cacaliæ* folio D. *Fagon* Schol. Botan. 153. *Pluk.* Tab. 232. Fig. 1. *Nard* de *Montagne* de *Leon.* Hiſt. Lugd. *Gallice* Tom. 1. p. 805. Fig.

N.B. This rare Plant was firſt *Figured* and *Deſcribed* in the *French Edition* of the *Hiſt. Lugdunenſis*, but omitted in the *Latine*. It grows on the Mountain *Veduxo* called *Sierras albas* or *Puerto de Veduxo*, facing the North, where it *Flowers* in *May* and *June*. *Dr. Plukenet* firſt Obſerved it in *Mr. Charles du Bois* his very Curious Garden at *Mitcham*, and has *Figured* the upper part of the Plant only, with auriculate Leaves, which the *Hiſt. Lugd.* has erroneouſly made whole; which only are ſo at the Root, round and ſerrated like the *Cacalia*, but thoſe on the Stalk are auriculated, as I have ſince obſerved it in the *Phyſick Garden* at *Chelſey*, when in *Flower* and *Seed*.

Bladder Nut. *Ray* 1681. cap. 12.

74 *Names.* Staphylodendron *Chabr.* 18. Ic. 6. I. B. l. 3. p. 274. Fig. *Tabern.* 1022. Ic. 2. *Hiſt.* Vol. 2. p. 724. fig. *Staphylodendron* ſylv. & vulgare *H. Leyd.* 582. Nux *Veſicaria* Ger. 1294. Fig. *Jonſt.* 1437. Fig. Park. 1418. Fig. *Piſtacia* ſylveſtris C. B. 401. 3.

This Tree grows in *Italy*, *Germany*, *Switzerland*, and in ſome few Places in *England*. It *Flowers* in *May*, and the *Fruit* is ripe in *September*.

Chriſts-thorn. *Ray* 1708. cap. 8.

75 *Names.* *Paliurus* Dod. 756. Fig. *Chabr.* 51. Ic. 2. *Ger.* 1153. Fig.

Fig. *Jonst.* 1336. Fig. *Paliurus* sive *Rhamnus* 3 Dioscoridis *Park.* 1006. Fig. *Rhamnus* sive *Paliurus* folio *Jujubino* I B. 1. l. 6. p. 35. *Rhamnus* folio subrotundo, fructu compresso C B. 477. 5.

The *Flowers* are stellated, small, of a greenish yellow, growing in Clusters amongst the Leaves, which are serrated like the *Jujube*. Its *Fruit* is hard and somewhat Bell-fashioned, including 3 *Kernels*, which rattle in the Cells when ripe. It *grows* in the Hedges and Fields about *Montpelier*, and several Parts of *Italy*, where it *Flowers* in *May* and *June*, and bears ripe *Fruit* in the *Autumn*, which hangs on the Trees all Winter. *Petrus Bellonius*, who travell'd over the *Holyland*, says it was with this Thorn they crowned our *Saviour*, and gives this Reason for it; That in *Judea* there was not any *Thorn* so fit, pliant and prickley as this, and that in those parts it grew in so great abundance, that they burn it for *Fewel*, as we do our *Gos* or *Furse*.

Common *Spindle Tree*. Ray 1621. 1. 76

Euonymus Dod. 783. Fig. *Tabern.* 1047. Ic. 1. *Hist.* 2. p. 754. Fig. Euonymus *Theophrasti* Ger. 1284. Fig. 1. *Johnst.* 1468. Fig. 1. Euonymus vulgaris *Park.* 241. Fig. 1. *vulg.* granis rubentibus C B. 428. 1. Euonymus 2 *Clus.* 57. Fig. *Pann.* 95. Fig. *Euonymus* multis, alijs *Tetragonia* Chabr. 62. Ic. 6. I. B. 1. l. 8. p. 201. Fig. *Names.*

This makes a pretty Shew in Hedges, especially in the *Autumn* and towards Winter, when its red Husks open, and expose its Orange Kernels.

Broad, purple flowred *Spindle Tree*.

Euonymus latifolius, fl. purpureo *Nobis*. 77

This rare Tree seems to differ from both the *Hungarian* sorts of *Clusius*, the broad leaved, like this, having white or flesh Coloured *Flowers*, and the *Leaves* of the Purple flowred resemble our *Common*. I saw this in *Flower* with great Pleasure in the Bishop of *Londons* Garden at *Fulham*. *Names.*

French

78 French *Tamarisk.* Ray 1704. 1.

Names. Tamariſcus *Narbonenſis* Ge. 1194. Fig. 1. *Jonſt.* 1378. 1. *Tamariſcus* folio tenuiore *Park.* 1479. 3. Fig. Tamarix *Narbonenſis* Tabern. 945. Ic. 1. *Hiſt.* Vol. 2. p. 647. Fig. *Tamarix* major *ſive* Arborea *Narbonenſis* I B. 1. l. 10. p. 350. Fig. *Tamarix* altera fol. tenuiore ſive *Gallica* C B. 485. 2. Myrica 1. *Cluſ.* 40. Fig. *Hiſp.* 105. *Myrica* ſive *Tamarix* Chab. 75. Ic. 1.

It bears Tufts of very ſmall pentapetaloſe bluſh *Flowers*, which when ripe, turn white. It *grows* plentifully on the *Place.* *Sea Coaſts* near *Montpelier.* The famous *Dr Grindall*, Archbiſhop of *Canterbury*, was the firſt that cauſed this Tree to be brought into *England*, he being relieved of a great Oppreſſion and hardneſs of the *Spleen*, by the uſe of it.

79 German *Tamarisk.* Ray 1705. 2.

Names. Tamariſcus *Germanica* Ger. 1194. Fig. 2. *Tamariſcus* folio latiore *Park.* 1479. Fig. *Tamarix* Tabern 2. p. 646. Fig. *Myrica* id. 944. Ic. 2. Tamarix *Germanica* ſive minor fruticoſa I. B. 1. l. 10. p. 351. Fig. Chabr. 75. Ic. 2. *Tamarix* fruticoſa folio craſſiore *Germanica* C B. 485. 1. *Myrica* ſylv. altera *Cluſ.* 40 Fig. *Pann.* 27. Fig.

This differs from the *French* in having thicker greyiſh *Place.* *Leaves* and ſpiked *Flowers*, which turn into a white Down. It *Flowers* in *May*, *June*, &c. in Rocky wet Places, and *River* ſides. *Mr Ray* obſerved it about *Ausburgh*, *Geneva*, *Landau*, &c.

80 Nettle-tree. *Ray* 1483. c. 9.

Names. *Lotus* arbor *Ger.* 1308. fig. *Jonſt.* 1522. fig. *Park.* 1522. fig. *Lob.* 2. p. 186. Ic. *Belg.* 2. p. 218. fig. *Obſ.* 605. fig. Lotus *arbor* fructu *Ceraſi* Chabr. 16. Ic. 3. I. B. 1. l. 2. p. 229. fig. *Lotus* fructu Ceraſi C B. 447. 1. *Celtis* fructu nigricante *El. Bot.* 485. I. R. H. 612.

Its *Leaves* notcht like *Elm*, but longer pointed, with ſmall ſtamineous *Flowers* and a blackiſh *Berry*, with a furrowed Stone, diſtinguſh it from other Trees. It grows in the Hedges about *Rome* and *Mompelier.*

SECT

SECT. II. Oriental, African, *and* West INDIAN *Plants.*

Canada *Asarabacca.* Ray *Hist.* Plant. 208. 2. 81

ASarum *Canadense* Cornuti 25 c. xi. Fig. *Asarum* A- *Names.*
mericanum *Park.* 226. Fig. Asarum *Americanum* majus *Virid.* var. 94. *Vallot. H.* Reg. *Paris.* 25.

This is larger in all its Parts than the *Common*, its *Leaves* somewhat pointed and Velvetey. It *flourishes* very well in the *Bishop* of *Londons Garden* at *Fulham*, where I have seen it in Flower. *Grows* wild both in *Virginia* and *Canada.* *Character.* *Place.*

Pellitory *Pill-Nettle.* Ray 161. 7. 82

Urtica *Pilulifera* altera, *Parietariæ* foliis *Dodart.* Mem. 131 Fig. Urtica *Romana* altera mitior, foliis minus serratis, *Lini* semine *Joncquet* Hort. Reg. *Paris* 138. *Urtica* urens altera *Pilulifera*, Parietariæ *foliis* Vallot 187. *Names.*

This *differs* from the *Roman Nettle*, in having lesser *Leaves*, and those rarely serrated. Many *Gardiners* call this Plant *Spanish Marjoram*, inducing unwary People to sting their Noses by smelling to it. *Character.*

Great *Canada* Nettle. *Ray* 1854. 8. 83

Urtica racemosa *Canadensis* maxima *Dodart* Mem. 120. Fig. *Urtica* iners maxima *Canad.* Joncq. 138. *Urtica* max. racemosa *Canadensis* Vallot. 187. *Names.*

The *Leaves* of this stand on longer Footstalks, are of a deeper green, and not pungent as the *Common Nettle.* *Character.*

Great *Canada* Bur-Nettle. *Ray* 165. 2. 84

Xanthium majus *Canadense* H. Leyd. 653. *Lappa* strumaria *seu Xanthium Virginianum* folio & fructu grandiori *Almag. Botan.* 205. *Xanthium Canadense* minori congener, sed procerius *Val.* 110. *Names.*

Character. This is much taller, larger and more ſpread than the Common, its *Burs* alſo bigger. I have obſerved this in the *Biſhop* of *London's Garden* at *Fulham.*

85 Ægyptian *Groundſell* with *Fetherfew* Leaves.

Names. Senecio *Ægyptiacus*, fol. *Matricariæ* Boerhave *Ind. Plant.* H. Leyd. 40. 2.

The *Leaves* are large and ſmooth, but the *Flowers* ſmall, which appear from *July* till *Autumn.* We are oblig'd to *Dr Boerhave*, Botanick Profeſſor at *Leyden*, for the Seed and firſt diſcovery of this Plant.

86 Athenian *Groundſell.* Ray 3. p. 183. pl. 3.

Names. S necio *Atticus* vulgari ſimilis, flore petalis ferè inconſpicuis radiato *Pluknet.* Almageſt. Botan. 342.

Character. Theſe *Leaves* are very hoary, like our *ſweet Groundſell*, but larger and more clammy; the *Flowers* alſo are ſcarce

Diſcovery. radiated. The Reverend *Sir George Wheeler* firſt obſerv'd this *Plant* about *Athens*, and communicated Seed of it to our Gardens.

87 Cockle-Flowred *Oriental* Scabious.

Names. Scabioſa *Orientalis* Pſeudo-melanthij *flore.*

The Peculiarity of this Plant lies in the *Flower*, whoſe Rim is compoſed of broad, flat, red *Petals* reſembling the *Cockle*, with much leſs, narrower and pipey Leaves in the middle. It *Flowers* from *May* till towards *Autumn.*

88 *White* Oriental *Scabious* with differing Leaves.

Names. Scabioſa *Orientalis* folijs biformibus, fl. albo *Nobis.* argentea minor *Wheeler* 239. 2. Scabioſa *Orient.* argentea folijs inferioribus inciſis T. *Coral.* 34.

The *Leaves* next the Root are whitiſh and jagged like the ſmall Field Scabioſe, thoſe towards the top very narrow, moſtly whole and pale; the *Flowers* white with broad Rims, like the *Cockle flowred*, but ſmaller and trifid; its *Heads* compoſed of long ſtiff Hairs reſembling

Diſcovery. thoſe of *Avens.* This elegant Plant was firſt diſcover'd by Sir *George Wheeler* on Mount *Sipylus.* My very worthy Friend *Mr Jacob Bobart* at *Oxford*, ſent me the firſt Speci-

Specimen of this, ſince which I have obſerved it with *Mr Thomas Fairchild* at *Hoxton*, and in *Chelſey Garden*, flouriſhing in *July*, *Auguſt*, *&c.*

Yellow hoary *Cape Camomil. Ray* 356. 9. 89

Names.

Chamæmelum *Æthiopicum* lanuginoſum *Breyn.* Cent. 73. Fig. Cotula *Africana* capite eleganti cæſio I. R. H. 494.

Character. Its *Leaves* are very fine reſembling *Dogs Chamomil*, the *Flowers* yellow, with a ſmall ſhort Rim ſtanding in a pretty glaucous Funnel-like *Calix*. *Place.* I firſt obſerved this in the *Phyſick Gardens* at *Leyden* and *Amſterdam*, and ſince at *Chelſey*, Flowring in *July* and *Auguſt*.

Dwarf *Oriental* Fennel-Tanſy. 90

Names.

Coma *Orientalis* pumila *Nobis*. *Chamæmelum* marinum *Aſiaticum* nudum humifuſum, folio craſſo *Boerhave* Ind. Plant. H. *Leyd.* 36. 8.

Character. This chiefly differs from the *Valentia Fennel-Tanſy* in being much leſs.

Ægyptian *Maudlin*. Ray. 369. 11. 91

Names.

Ageratum *Ægyptiacum*, ſolijs incanis variè inciſis *Nobis*. Abrotano *fœmina* 2 Specie *Zanon.* 9. c. 3. Fig. 3. *Abſinthium* Capili Veneris *folio* C B. phyt. 236. 12. Abſinthium *Santonicum* Ægyptiacum C B. 139. 3. *Park.* 103 Fig. 5. Semen *ſanctum*, aliud *peregrinum* ſive *Ægyptiacum* Abſinthium *Lob.* 756. Ic. 2. *Belg.* 923. Fig 2. *Obſ.* 437. Fig. 2.

Place. I firſt received this elegant Plant from that curious Botaniſt *Monſ. Sebaſtian Vaillant* at *Paris*, and her Grace the *Dutcheſs Dowager* of *Beaufort* hath ſince ſent it me from *Badmington*: I ſaw it the laſt Summer in *Flower* with her at *Chelſey*, as alſo in our *Phyſick* Garden.

Hoary *Milfoil*-Maudlin. 92

Names.

Ageratum *Orient.* folio *Millefolij* tomentoſo *Nobis*. an *Millefolium* Tomentoſiſſimum *Boerhave* p. 38. 8.

Deſcription. The lower *Leaves* are hoary, very long and finely cut, not much unlike a *Herring Bone*, its *Flower* tufts before they open; are very cloſe, broad and *white*, but when

full blown, of a bright *yellow*, like the *hoary Yarrow* of that Colour, but without Rims. It *flowers* in *Chelsey Garden* from *July* till *September*.

93 *Names.* *Dioscorides* his *Gingidium*. Ray 416. 3.

Gingidium *Dioscoridis* Rawolphij 287. Fig. *Lugd.* app. 34. Gingidium *Syriacum* Camer. Hort. Fig. 16. *Gingidium* folio Faniculi C B. 151. 1. *Phyt.* 263. 1. *Gingidium* verum *s.* Syriacum *Park.* 890. 1 *Anetho* similis planta sem. lato laciniato I. B. 3. l. 27. p. 7. c. 6. Fig. *Anetho* similis planta; *Gingidium* verum *Dioscor.* Chabr. 382. Ic. 4.

Discovery. *Leonard Rawolph* was the first, since *Dioscorides*, who discovered this elegant Plant on the Precipices of the famous Mount *Libanon*. We are much obliged to that Curious Botanist *Dr William Sherrard* Consul of *Smyrna* for this Plant, which I first saw in *Flower* and *Seed* with *Mr Thomas Fairchild* Gardener at *Hoxton*, and since with *Mr. Charles du Bois* at *Mitcham*.

94 *Names.* Yellow Clammy *Oriental* Tournsole.

Heliotropium *Orient.* procumbens viscosum fl. luteo *Nobis.* Buglossum *Orient.* fl. luteo T. *Cor.* 6.

Description. The *Root-Leaves* are long, broad, and very clammy, as are its Branches, which spread on the Ground and end in reflex Spikes of yellow Flowers. We are oblig'd to *Dr Sherrard* for Seeds of this Plant, which *flowers* in *Chelsey Garden* the greatest part of the Summer.

95 *Names.* *Brasil* broad *Borrage*-Tournsole. *Ray* 502. 5.

Heliotropium *Americ.* cæruleum folijs *Hormini* Dodart. 83. Fig. *latifolium* H. Leyd. 307. *Jacua acanga.* Pis. 229. Ic. *Fedogoso* Lusit. *Jacua acanga* Brasil. *Scorpioidis* Species *Marcgr.* p. 7. Ic.

This elegant Plant grows about a Yard high, with large opposite Clary like *Leaves*; at the end of the Branches rise long slender Spikes of small blueish *Flowers*, which turn backwards like our *Common Scorpion Grass*.

96 *Names.* Barbadoes *Spikenard*.

Citrago *Barbadensis* folio Meliss majore.

Its

Its middle *Stalks* grow near a hand high, are four Square, with large oppoſite Balm *Leaves* of a pale green, more lacerated or torn then ſerrated, ſtanding on long ſlender Footſtalks. Its *Flowers* come from the Boſom of the Leaves, eſpecially at the bottom, they are ſmall and Moſſey like thoſe of *Nettles*. This curious Plant flowred the laſt Summer in *Chelſey Garden*, which is the only Place where I have as yet ſeen it. *Deſcription.*

Cape *Hour Mallow*. Ray 1067. 8. 97

Alcea Veſicaria *Capitis Bonæ Spei* H. Ox. 533. 12. Alcea *Veſicaria* Æthiopica *Munting*. Phytograph. Curioſa *Tab.* 72. Fig. *Names.*

This differs from the *Common*, in having a firm upright Stalk; its *Leaves* rounder, broader and ſmoother; the *Flowers* finer, larger and a blacker bottom; the *Seed* leſs. *Munting* has given a very accurate *Figure* of this Plant. *Difference.*

Round leaved *Virginia* Crowfoot. 98

Ranunculus auricomus *Virginianus* Jac. Bobart. Ranunlus *Virginianus* parvo flore, molliori folio *Herm.* H. Leyd. 514. *Names.*

Its lower *Leaves* are round, limber and ſerrated like our *Alliaria*, or *Sawce alone*, the *Flowers* ſcarce diſcernible, and *Seed heads* very ſmall. *Dr Herman* owns to have received this from *Mr Jacob Bobart*: I firſt ſaw it in the *Leyden Garden* with *Dr Boerhave*, who hath ſince ſent it to *Chelſey*. *Place.*

Piked *Strawbery*-Trefoil. 99

Trifolium *Orientale*, capitulo veſicario rigido. *Names.*

The Leaves are oval, ſmooth, and lightly crenated; its *Heads* round, with ſtiff long Points, ſtanding out of ſtreaked, whitiſh, bladder-like *Husks*. I obſerved this elegant Plant in *Chelſey Garden*.

Round fluſey *Haresfoot*. 100

Trifolium *Lagopoides* procumbens; capitulis rotundis G. *Stoneſtreet*. an *Trifolium* Orientale, *capite* lanuginoſo *T. Coral*. *Names.*

The

Deſcription. The *Leaves* are ſmall, oval, plain and ſomewhat hoary; the leſſer Branches, which adhere to the greater Stalks, are bearded; its bluſh *Flowers* ſtand in a round fluſey *Head*, like our *Haresfoot*, but not ſo ſoft. The Reve-
Place. rend *Mr William Stoneſtreet*, that ſagacious Naturaliſt, gave me a Specimen of this, which he had raiſed in *Mr Fairchild's Garden* at *Hoxton* from Seed he received from *Dr William Sherrard* Conſul at *Smyrna*.

101 Four leaved *Earth-Nut*. Muſ. Petiver. 33. Ray 919. 3.
Names. Arachydna *Indiæ utriuſque* tetraphylla *Par. Bat.* pr. 314. *Arachus* upogaios congener hirſuta è *Maderaſpatan*, flore flavo, ſiliquis punctatis ſcabris, ſolliculos ſub terram condens. *Pluk. Tab.* 60. Fig. 2. *Alm. Botan.* 341. pl. ult. Mundubi *Marcgr.* 37. Fig. *Piſ* 256. Fig.

It bears four *Leaves* on a two Inch hairy Footſtalk,
Deſcription. with two long welted Beards at ſetting on. The Peculiarity of this ſtrange Plant is to ripen its *Pods* under Ground; the *Peaſe* are much eaten both in *Guiney* and the *American Iſles*; it grows alſo in the *Eaſt Indies*. It was raiſed the laſt Summer in *Chelſey Garden*.

China *Pink*.

102
Names. Caryophyllus *Sinenſis*, flore pulcherrimo *Boerhave* 88. 23.

Deſcription. This elegant Plant has ſingle *Flowers* with a large dark *Eye* or *Ring* towards the bottom; its *Leaves* not unlike the other *Pinks*. I ſaw it in *Flower* the laſt Summer with *Mr Fairchild* at *Hoxton*.

103 Cape Tree-*Cranesbill* with roundiſh circled Leaves.
Names. Geranium *African.* arboreſcens, *Alchimillæ* hirſuto folio, floribus rubicundis *Comel.* prælud. 1. p. 51. Fig. *Ray* App. 3. 229. 1.

This riſes three or four Foot high from a round hairy
Deſcription. Stem, which divides into ſo many Branches; its *Leaves* ſoft and roundiſh, with a dark Circle in the midſt; theſe if lightly rubb'd, ſmell very pleaſantly like *Codlings* and *Cream*; it bears Tufts of bluſh *Flowers*, with equal Petals,

Petals, the two uppermoſt only ſtreakt with red. This is *cultivated* in moſt of the *curious Gardens* about *London, viz.* with the *Dutcheſs* of *Beaufort*, *Biſhop* of *London*, *Dr Uvedal*, *Mr du Bois*, *&c.* It *flowers* moſt part of the *Summer*, eſpecially from *Midſummer* till *Autumn.* *Place.*

104

Boerhave's Cape *Cranes-bill*, with ſmall roundiſh circled *Leaves.* *Names.*

Geranium *African.* folio *Alchimillæ* piloſo, maculato *Boerhave* Ind. Plant. *Leyd.* 112. pl. 52.

This is a low Plant, with dark *Circles* and roundiſh *Leaves* like the laſt, but more indented, yet not ſo deep and hairy as the *Ladies-Mantle* Cranes-bill of Dr. *Herman*; its *Flowers* are alſo ſmaller than that and all white, the Petals whole, and of one ſize. I obſerv'd this in *Chelſey Garden*, flowering in *Auguſt.* *Character.*

Cape *Cranes-bill* with round and angular, thick, ſower *Leaves.* 105 *Names.*

Geranium African. *Hederæ arboreæ* folio, floribus purpureis *Ray* 3. p. 514. pl. 38. Geranium *Africanum*, foliis inferioribus *Aſari*, ſuperioribus *Staphydiſagriæ*, maculatis & ſplendentibus, *Acetoſæ* ſapore *Comel.* prelud. 1. p. 52. fig. Ray 3. App. 228. 2.

This is a ſpreading low Plant, with ſhining, thick, juicey, tart, round umbrella *Leaves*; thoſe towards the Flowers are angular and pointed: Its *Taſſel-Flowers* are large, of a bluſh colour; the *Petals* all of the ſame ſize, and the two uppermoſt ſtreak'd with red. It *flouriſhes* moſt part of the Year at *Chelſey*, *Fulham*, *Enfield*, &c. It grows wild in the Diſtricts of *Heycoon* at the Cape of *Good Hope.* *Character.*

Yellow *African* Bean-Caper. 106

Fabago *Africana* arboreſcens, flore Sulphureo, fructu rotundo *Comel.* Pl. rar. 10. Fig. *Names.*

Its

Names. Its *Leaves* are ſmall, thick, green, and 4 together, viz. two on each ſide the Stalk, with as many little *Spines* at ſetting on; from theſe come 5 leaved yellow *Flowers*, with a round flatiſh *Husk*, which ſplits into 5 *Cells*, containing ſo many Seed. I have with great pleaſure ſeen this rare Shrub between 2 and 3 yards high, and in Flower, with her Grace the Dutcheſs *Dowager* of *Beaufort*, now at *Chelſea*.

Place.

107 Virginia *Spindle-tree* with rough Fruit.

Names. *Euonymus* Virginianus *Pyracanthæ* folijs, capſulâ verrucarum inſtar aſperatâ rubente *Pluk.* Tab. 115. Fig. 1. *Alm. Botan.* 139. pl. 8.

Character. The *Leaves* are ſmall, ſtiff, and ſerrated, not unlike the *Sloe*. I have ſeen this with ripe *Fruit* at the Biſhop of *London*'s at *Fulham*, under the Care of Mr. *Millward*, my Lord's Gardner, where it now grows larger than a *Currant* Buſh.

108 *Steerbecks* Cape *Spindlekin*.

Names Euonymo adfinis *Æthiopica* ſemper virens, *fructu* globoſo ſcabro, *folijs* Salicis rigidis ſerratis *Herm.* H. Leyd. 139. *Pluk.* Tab. 176. Fig. 3. *Alm. Botan.* 129. pl. 11. *Laurus* non odorata, fructu globoſo, *Africana* Steerb. *Citricult.* 248. Lauro ſerratæ odoratæ *Stapelianæ* ſimilis inodora *Capitis Bonæ Spei* Breyn. Prodr. 1. p. 42.

Character. This Tree bears Tufts of ſmall five-leaved pale greeniſh *Flowers*, coming from the Boſom of its Leaves, which are ſtiff, long and ſerrated. I ſaw a ſpecious Tree of this in the *Queens Stows* at *Hampton Court*,

Place. under the Care of *Mr Wiſe*, Her *Majeſty's Gardiner*, Flowring in *July*, *&c.*

VI. *Obſer-*

VI. *Observationes Cœlestes* Britannicæ, Grenovici *in Observatorio Regio, a* JOHANNE FLAMSTEEDIO, AST. REG. *habitæ, Annis* MDCCXI & MDCCXII.

Observationes SATURNI.

Temp. per Horolog.	Tempora correcta.	Die Veneris Januarij 5. 1711.	Distantiæ a Vertice.
10. 14. 26	10. 14. 41	Calx Castoris ♎ ♊ transiit	28. 50. 10
11. 11. 38	11. 11. 53	In Inguine Pollucis, ♃ transi.	28. 59. 00
12. 4. 45	12. 5. 00	Saturnus transiit ———	30. 23. 20
		Ascensio recta ♄ 119. 01. 00	
		Dist. a Polo Bor. 68. 55. 20	
		Die Solis Januarij 7.	
11. 2. 53	11. 0. 31	Geminorum ♃ transiit ——	28. 59. 20
11. 50. 36	11. 48. 14	In pede Bor. ♋ ♎ transiit —	29. 5. 20
11. 55. 22	11. 53. 00	Saturnus transiit —— ——	30. 21. 50
12. 15. 41	12. 13. 19	Cancri ♈ *Bayero* transiit —	30. 4. 30
12. 26. 18	12. 23. 56	Cancri ♋, Asellus Bor. transi	28. 59. 50
		Ascensio Rect ♄ 118. 52. 00	
		Dist. a Polo Bor. 68. 53. 50	
		Die Lunæ, Januarij 8.	
10. 58. 35	10. 57. 49	Geminorum ♃ transiit ——	28. 59. 15
11. 50. 46	11. 50. 00	Saturnus transiit ———	30. 20. 35
12. 11. 25	12. 10. 30	Cancri ♈ transiit ———	30. 4. 25
		Ascensio Rect. ♄ 118. 46. 30	
		Dist. a Polo Bor. 68. 52. 35	

Temp. per Horolog.	Tempora correcta.	Die Jovis, Januarij 25. 1711.	Distantia a Vertice.
9. 45. 53	9. 46. 26	Geminorum ♪ transiit ——	28. 59. 10
10. 32. 27	10. 33. 00	Saturnus transiit ——	30. 4. 00
11. 10. 54	11. 11. 27	Cancri ♋, Asellus Aust. transf.	32. 17. 50
		Ascensio Rect. ♄ 117.23.00	
		Dist. a Polo Bor. 68.36.00	
		Die Saturni, Januarij 25.	
9. 37. 25	9. 38. 2	Geminorum ♪ transiit ——	28. 59. 20
10. 13. 11	10. 13. 48	Sub latere Pollucis *l* transiit	30. 51. 50
10. 23. 23	10. 24. 00	Saturnus transiit ——	30. 2. 30
10. 40. 59	10. 41. 36	Post Caudam ♋ *d* transiit	32. 14. 10
10. 50. 16	10. 50. 53	Cancri ♋ transiit ——	30. 4. 35
		Ascensio Rect. ♄ 117.14.00	
		Dist. a Polo Bor. 68.34.30	
		Die Martis, Januarij 30.	
9. 29. 45	9. 26. 55	Geminorum ♪ transiit ——	28. 59. 40
10. 14. 50	10. 12. 00	Saturnus transiit ——	30. 0. 00
10. 33. 20	10. 30. 30	Cancri *d* transiit ——	32. 14. 10
10. 42. 35	10. 39. 45	Cancri ♋ transiit ——	30. 4. 45
		Ascensio Rect. ♄ 117.00.30	
		Dist. a Polo Bor. 68.32.00	
		Die Mercurij, Feb. 28.	
8. 18. 32	8. 15. 00	Saturnus transiit ——	29. 43. 00
8. 27. 11	8. 23. 39	In Boreo pede Cancri μ tran.	29. 5. 40
9. 2. 50	8. 59. 18	Asellus Boreus Cancri γ tran	29. 0. 20
10. 39. 59	10. 36. 27	Lucida Colli Leonis γ transf.	30. 12. 05
		Ascensio Rect. ♄ 115.31.30	
		Dist. a Polo Bor. 68.15.00	

Die

Temp. per Horolog.	Tempora correcta.	Die Jovis, Mart. 1. 1711.	Distantia a Vertice.
8. 14. 5	8. 11. 00	Saturnus transiit —— ——	29. 42. 50
8. 22. 47	8. 19. 42	Cancri μ transiit —— —	29. 5. 35
8. 58. 28	8. 55. 23	Asellus Boreus transiit ——	29. 0. 15
10. 35. 36	10. 32. 31	Lucida Colli Leonis transiit	30. 12. 00
		Ascensio Rect. $\flat$ 115.30.30	
		Dist. a Polo Bor. 68.14.50	
		Die Veneris, Nov. 9.	
17. 21. 12	17. 21. 23	Sequens ad π Cancri transiit	35. 21. 10
17. 29. 49	17. 30. 00	Saturnus transiit —— ——	34. 9. 50
18. 13. 25	18. 13. 36	Australina Colli Leonis η transf.	33. 18. 50
		Ascensio Rect. $\flat$ 136.58.00	
		Dist. a Polo Bor. 72.42.00	
		Die Lunæ, Nov. 19.	
16. 46. 20	16. 41. 00	Saturnus transiit —— —	34. 8. 00
16. 59. 31	16. 54. 11	Telescopica a transiit ——	33. 45. 30
17. 29. 59	17. 24. 33	Australina Colli Leonis η transf.	33. 18. 30
		Ascensio Rect. $\flat$ 136.58.30	
		Dist. a Polo Bor. 72.40.05	
		Die Jovis, Nov. 22.	
16. 24. 36	16. 19. 30	Cancri sequens ad π transiit	35. 21. 30
33. 06	16. 28. 00	Saturnus transiit —— ——	34. 6. 50
46. 27	16. 41. 21	Telescopica dicta transiit—	33. 45. 10
17. 16. 51	17. 11. 45	Australina Colli Leonis transiit	33. 18. 30
		Ascensio Rect. $\flat$ 136.55.45	
		Dist. a Polo Bor. 72.39.00	

Die Solis

Temp. per Horolog.	Tempora correcta.	Die Solis, Decembris 30. 1711.	Distantia a Vertice.
11. 9. 43	10. 52. 42	Lucidus pes ♊ γ transiit—	34. 51. 30
13. 29. 25	13. 12. 24	Cancri præced ad ☌ transiit	35. 4. 00
13. 49. 01	13. 32. 00	Saturnus transiit ———	33. 30. 00
14. 39. 50	14. 22. 49	Lucida Colli Leonis transiit	33. 18. 40
		Ascensio Rect. ♄ 135.10.00	
		Dist. a Polo Bor. 72. 2. 5	

ANNO MDCCXII.

Die Saturni, Januarij 12,

11. 39. 52	11. 33. 06	Ad caudam Cancri ♋ transiit	32. 59. 10
12. 40. 46	12. 34. 00	Saturnus transiit ———	33. 12. 00
12. 43. 16	12. 36. 30	Cancri sequens ad ♈ transiit	35. 22. 20
13 36. 44	13. 29. 58	Cor Leonis transiit ———	38. 6. 55
		Ascensio Rect. ♄ 134.12.00	
		Dist. a Polo Bor. 71.44 00	

Die Saturni, Jan. 19.

11. 45. 31	11. 36. 55	Asellus Australis transiit —	32. 17. 10
11. 58. 14	49. 38	Australis ad ☌ Cancri transiit	35. 3. 50
12. 11. 36	12. 3. 00	Saturnus transiit ———	33. 2. 5
12. 20. 00	11. 24	Telescopica *b* transiit ———	32. 33. 20
		Ascensio Rect. ♄ 133.37.00	
		Dist. a Polo Bor. 71.34.10	

Die Solis, Jan. 27.

10. 57. 50	11. 4. 31	Asellus Australis transiit—	32. 17. 10
11. 10. 54	11. 17. 35	Borea ad *o* Cancri transiit	34. 48 10.
11. 21. 19	12. 28. 00	Saturnus transiit ———	32. 50. 20
11. 32. 20	39. 01	Telescopica *b* transiit ———	32. 33. 25
		Ascensio Rect. ♄ 132.58.00	
		Dist. a Polo Bor. 71. 22.20	

Die

Temp. per Horolog.	Tempora correcta.	Die Luna, Martii 31. 1712.	Distantia a Vertice.
7. 8. 46	7. 7. 41	Asellus Australis transiit	32. 16. 50
7. 20. 35	7. 19. 30	Saturnus transiit	32. 03. 30
7. 36. 50	7. 35. 45	Cancri præced. ad π transiit	35. 19. 10
7. 39. 36	7. 38. 31	Sequens ad π transiit	35. 21. 20
8. 31. 51	8. 30. 46	Australis colli Leonis transf.	33. 18. 40
		Ascensio recta ♄ 130.02.00	
		Dist. a Polo Bor. 70.35.30	
		Die Veneris, Novemb. 7.	
18. 17. 13	18. 22. 00	Saturnus transiit	37. 57. 30
18. 26. 13	18. 31. 00	Leonis 40 *Catal. Brit.* transf.	41. 14. 10
18. 28. 35	18. 33. 22	Ejusdem 41 transiit	40. 15. 20
		Ascensio Rect. ♄ 150.15.30	
		Dist. a Polo Bor. 76.29.40	
		Die Luna, Nov. 17.	
17. 33. 19	17. 34. 59	Cor Leonis transiit	38. 7. 20
17. 42. 20	17. 44. 00	Saturnus transiit	38. 00. 50
17. 57. 48	17. 59. 28	In Axilla Leonis ε transiit	40. 41. 45
18. 14. 19	18. 15. 59	In ventre Leonis *l* transiit	39. 24. 50
		Ascensio Rect. ♄ 150.31.00	
		Dist. a Polo Bor. 76.33.00	

Observationes JOVIS,

Anno MDCCXI.

Temp. per Horolog.	Tempora correcta.	Die Saturni, Maij 26. 1711.	Distantia a Vertice.
12. 44. 28	12. 39. 44	Serpentarij 58 *Cat.Br.* transf.	76. 12. 00
52. 40	47. 56	Sagittarij Nebulosæ *a* transii	75. 39. 20
13. 8. 44	13. 4. 00	Jupiter transiit —— ——	74. 37. 00
15. 43	10. 59	Sagittarij 11 transiit ——	72. 5. 20
		Ascensio Rect. ♃ 270. 19 00	
		Dist. a Polo Bor. 113. 11. 50	
		Die Solis, Maij. 27.	
10. 47. 24	10. 43. 2	Media frontis ♏, ♪ transf. —	73. 12. 00
12. 57. 46	53. 24	Telescopica *c* Jovem præced	75. 7. 50
13. 4. 22	13. 00. 00	Jupiter transiit ——	74. 36. 50
11. 53	7. 31	Sagittarij 11 transiit ——	72. 5. 20
		Ascensio Rect. ♃ 270. 11. 00	
		Dist. a Polo Bor. 113. 11. 40	
		Die Solis Junij 3.	
10. 15. 41	10. 10. 45	Media frontis Scorpij transii	73. 12. 5
12. 14. 11	12. 9. 15	Nebulosæ Sagittarij *b* transiit	75. 10. 20
12. 17. 09	12. 12. 13	Ejusdem Nebulosæ *a* transiit	75. 39. 30
12. 28. 56	12. 24. 00	Jupiter transiit —— ——	74. 38. 00
13. 8. 36	13. 03. 40	Sagit. in Oculo præced. transf.	74. 29. 15
		Ascensio Rect ♃. 269. 15 00	
		Dist. a Polo Bor. 113. 12. 50	

Die

Temp. per Horolog.	Tempora correcta.	Die Luna, June 4. 1711.	Distantia a Vertice.
10. 11. 51	10. 7. 19	Media frontis Scorpij transiit	73. 12. 00
12. 10. 18	12 5. 46	Nebulosæ Sagittarij *b* transf.	75. 10. 20
12. 24. 32	12. 20. 00	Jupiter transiit ———	74 38. 10
13. 4. 45	13. 0. 13	Præced ad *v* Sagittarij transf.	74. 29. 10
13. 5. 41	13. 1. 09	Sequens ad *v* transiit ———	74. 24. 50
		Ascensio Rect. ♑ 269 07.00	
		Dist. a Polo Bor. 113.13.00	

Die Saturni, Junij 9.

9. 52. 16	9. 49. 5	Media frontis Scorpij transf.	73. 11. 55
11. 50. 44	11. 47. 33	Nebulosæ *b* transiit ———	5. 10. 15
12. 2. 11	11. 59. 00	Jupiter transiit ———	74. 38. 25
12. 45. 8	12. 41. 57	Præced. ad *v* Sagittarij tran	74. 29. 10
		Ascensio Rect. ♑ 268.25.00	
		Dist. a Polo Bor. 113.13.15	

Die Solis, Junij 10.

9. 48. 22	9. 44. 38	Media frontis Scorpij transiit	73. 12. 00
11. 46. 51	11. 43. 07	Nebulosæ *b* transiit —— ——	75. 10. 15
11 57. 44	11. 54. 0	Jupiter transiit ——— ——	74. 38. 35
12. 41. 14	12. 37. 30	Præcedens ad *v* Sagitt. transf.	74. 29. 15
		Ascensio Rect. ♑ 268.16.45	
		Dist. a Polo Bor. 113.13.25	

Die Saturni, Julij 14.

8. 58. 10	8. 50. 4	Serpentarij 48, C transiit—	75. 7. 20
9. 10. 32	9. 2. 26	Ejusdem 54 sive D transiit	72. 56. 00
9. 21. 6	9. 13. 00	Jupiter transiit ——— ——	74. 37. 50
9. 40. 49	9. 32. 43	Sagittarij in arcu μ transiit	72. 31. 30
		Ascensio Rect. ♑ 264.12.30	
		Dist. a Polo Bor. 113.12.40	

Die

Temp. per Horolog.	Tempora correcta.	Die Solis, Julij 15. 1711.	Distantia a Vertice
8. 54. 8	8. 46. 24	Serpentarij C transiit ——	75. 7. 20
9. 6. 28	8. 58. 44	Serpentarij D transiit ——	72. 56. 00
9. 16. 44	9. 9. 00	Jupiter transiit —— ——	74. 37. 50
9. 36. 46	9. 29. 2	Sagittarij μ transiit ——	72. 31. 35
		Ascensio Rect. ♑ 264.07.45	
		Dist. a Polo Bor. 113.12.40	

ANNO MDCCXII.

Die Jovis, Julij 3.

12. 36. 3	12. 25. 14	Capric. sub Oculo σ transiit	71. 24. 40
12. 44. 6	12. 33. 17	Capric. in rostro π transiit	70. 33. 00
12. 45. 42	12. 34. 53	Capricorni ϱ transiit ——	70. 09 50
12. 57. 49	12. 47. 00	Jupiter transiit ——	71. 26. 20
13. 16. 24	13. 5. 35	Capric. 20 *Catal. Brit.* transf.	71. 33. 10
		Ascensio Rect. ♑ 306.09.20	
		Dist. a Polo Bor. 110. 0.30	

Die Martis, Julij 15.

11. 39. 34	11. 39. 33	Capricorni σ transiit ——	71. 24. 45
55. 1	11. 55. 00	Jupiter transiit ——	71. 49. 20
12. 19. 53	12. 19. 52	Capricorni 20 transiit——	71. 33. 10
24. 38	12. 24. 37	[illegible]ni in medio corpore „ tr.	72. 23. 25
		Ascensio Rect. ♑ 304.34.35	
		Dist. a Polo Bor. 110.23.30	

Die Mercurij, Sept. 17.

7. 32. 37	7. 31. 56	Telesc. Jovem præced. transf.	72. 49. 40
7. 38. 41	7. 38. 00	Jupiter transiit ——	72. 51. 10
7. 42. 28	7. 41. 37	Telesc. Jovem sequens transf.	73. 14. 40
		Ascensio Rect. ♑ 299.43.00	
		Dist. a Polo Bor. 111.25.30	

Die

Temp. per Horolog:	Tempora correcta.	Die Veneris, Septembris 19. 1712.	Distantia a Vertice.
7. 30. 55	7. 32. 00	Jupiter transiit —— ——	72. 50. 45
8. 19. 47	8. 20. 52	Capricorni ″ transiit ——	72. 23. 40
		Ascensio Rect. ♃ 299. 45. 00	
		Dist. a Polo Bor. 111. 25. 05	
		Die Lunæ, Octobris 6.	
6. 25. 35	6. 31. 30	Jupiter transiit —— ——	72. 39. 50
6. 36. 22	6. 42. 17	Capricorni in rostro ◦ transf.	70. 56. 25
6. 46. 36	6. 52. 31	Capricorni in Cervice ∪ transf.	70. 33. 30
		Ascensio Rect. ♃ 300. 39. 00	
		Dist. a Polo Bor. 111. 14. 10	

Observationes MARTIS,

Anno MDCCXI.

		Die Solis Jan. 7.	
12. 40. 35	12. 38. 56	Cancri Aust. ad ◦ transiit ——	35. 04. 00
12. 40. 56	12. 39. 17	Cancri Bor. ad ◦ transiit ——	34. 48. 00
12. 58. 45	12. 57. 6	Cancri sequens ad ♈ transiit	35. 21. 20
13. 27. 15	13. 25. 36	Leonis ♄ transiit —— ——	36. 8. 50
13. 50. 52	13. 49. 13	Austrina Colli Leonis ″ transf.	33. 19. 00
14. 00. 39	13. 59. 00	Mars transiit —— —— ——	34. 51. 30
14. 30. 14	14. 28. 35	Borea Ventris ♌, *k* transiit	35. 45. 40
		Ascensio Rect. ♂ 150. 20. 00	
		Dist. a Polo Bor. 73. 23. 35	

Temp. per Horolog.	Tempora correcta.	Die Saturni, Januarij 27. 1711.	Diſtantia a Vertice.
10. 40. 59	10. 41. 30	Cancri 20, prima ad *d* tranſiit	32. 14. 10
10. 50. 16	10. 50. 47	Cancri η tranſiit	30. 4. 35
12. 8. 29	12. 9. 00	Mars tranſiit	32. 14. 00
12. 25. 27	12. 25. 58	Auſtrina colli Leonis η tranſ.	33. 19. 00
12. 37. 59	12. 38. 30	Lucida colli Leonis γ tranſiit	30. 11. 50
		Aſcenſio recta δ 143.37.00	
		Diſt. a Polo Bor. 70.36.00	
		Die Lunæ, Januarij 29.	
12. 1. 50	11. 59. 00	Mars tranſiit	31. 58. 50
12. 21. 58	12. 19. 08	Leonis η tranſiit	33. 19. 05
12. 34. 31	12. 31. 41	Lucida colli Leonis γ tranſiit	30. 11. 50
		Aſcenſio Rect. δ 142.49.30	
		Diſt. a Polo Bor. 70.30.50	
		Die Martis, Jan. 30.	
10. 33. 30	10. 30. 25	Cancri 20, prima ad *d* tranſ.	32. 14. 10
10. 42. 35	10. 39. 30	Cancri η tranſiit	30. 4. 45
11. 56. 5	11. 53. 00	Mars tranſiit	31. 51 35
12. 17. 49	12. 14. 44	Leonis η tranſiit	33. 19. 5
12. 30. 20	12. 27. 15	Leonis γ tranſiit	30. 11. 50
		Aſcenſio Rect. δ 142.25.00	
		Diſt. a Polo Bor. 70.23.35	
		Die Mercurij, Feb. 28.	
8. 27. 11	8. 23. 58	In pede Bor. Cancri μ tranſ.	29. 5. 40
9. 2. 50	8. 59. 37	Aſellus Boreus γ tranſiit	29. 00. 20
9 31. 13	9. 28. 00	Mars tranſiit	30. 5. 10
10. 27. 28	10. 24. 15	Leonis η tranſiit	33. 19. 55
10. 39. 39	10. 36. 26	Leonis γ tranſiit	30. 12. 5
		Aſcenſio Rect. δ 133.45.00	
		Diſt. a Polo Bor. 68.37.10	

Die

Temp. per Horolog.	Tempora correcta.	Die Jovis, Martij 1. 1711.	Distantia a Vertice.
8. 22. 47	8. 19. 27	Cancri μ transiit ———	29. 5. 35
8. 58. 28	8 55. 8	Asellus Boreus transiit ——	29. 00. 15
9. 26. 20	9. 23. 00	Mars transiit ——— —	30. 6. 20
10. 23. 04	10. 19. 44	Leonis η transiit ——— —	33. 19. 50
10. 35. 36	10. 32. 16	Lucida colli Leonis transf. —	30. 12. 00
		Ascensio Rect. δ 133.37.30	
		Dist. a Polo Bor. 68.38.20	

ANNO MDCCXII.

Die Lunæ, Novemb. 17.

18. 21. 7	18. 19. 52	Leonis 55 *Catal. Brit.* transf	43. 45. 40
18. 25. 53	18. 24. 38	sub Ventre Leonis *c* transf.	43. 49. 40
18. 30. 14	18. 28. 59	Leonis χ transiit ——— —	42. 35. 10
18. 43. 15	18. 42. 00	Mars transiit ——— —	43. 7. 25
		Ascensio Rect. δ 165.48.00	
		Dist. a Polo Bor. 81.39.45	

Die Jovis, Novemb. 20.

18. 13. 8	18. 6. 40	Leonis 55 transiit ———	43. 45. 40
18. 17. 53	18. 11. 25	Leonis 58, *c* transiit ——	43. 49. 50
18 22. 14	18. 15. 46	Leonis χ transiit——— —	42. 35. 15
18. 38. 18	18. 31. 50	In Poplite Leonis σ transiit	43. 52. 10
18. 40. 28	18. 34. 00	Mars transiit —— ———	43. 36. 55
		Ascensio Rect. δ 167. 6.30	
		Dist. a Polo Bor. 82. 9.15	

Obser-

Observationes SOLIS.

Anno MDCCXI.

	Distantia a Vertice.
Die Saturni, Januarij 6.	
Solis centro per planum Arcus Meridionalis transeunte, limbus ejus remotus & Australinus distabat a Vertice	72. 31. 10
Die Veneris, Januarij 26.	
Solis Meridiani limbus proximus a Vertice	66. 35. 10
Die Martis, Januarij 30.	
Solis limbus proximus a Vertice	65. 38. 40
Die Lunæ, Junij 4.	
Solis limbus remotus, &c.	28. 24. 18
Die Saturni, Julij 14.	
Solis limbus remotus	31. 55. 20
Die Martis, Novembris 20.	
Solis limbus remotus	73. 30. 40
Die Martis, Decembris 4.	
Solis limbus remotus a Vertice	74. 59. 30

Anno MDCCXII.

Die Mercurij, Januarij 2.	
Solis limbus remotus a Vertice	73. 17. 30
Die Saturni, Januarij 12.	
Solis limbus remotus	71. 18. 00
Die Veneris, Martij 7.	
Solis limbus remotus	52. 31. 00
Die Veneris, Maij 9.	
Solis limbus remotus	31. 40. 50
Die Martis, Octobris 7.	
Solis limbus remotus a Vertice	61. 29. 50

Obser-

Observationes LUNÆ.

Anno MDCCXI.

Temp. per Horolog.	Tempora correcta.	Die Saturni, Maij 19. 1711.	Distantia a Vertice.
10. 22. 12	10. 18. 32	Scorpij γ sive Libræ 15 tran.	75. 32. 50
10. 50. 55	10. 47. 15	☽ Limbus tran. centro a Vert.	75. 38. 40
10. 52. 10	10. 48. 30	☽ centrum transiit, proximo	75. 22. 00
11. 8. 30	11. 4. 50	Scorpij *b* transiit —— ——	76. 15. 20
11. 11. 10	11. 7. 30	Scorpij A transiit —— ——	75. 50. 55
		Ascensio Rect. ☽ 229.18.30	
		Dist. a Polo Bor. 114.13.40	

Die Lunæ, Novemb. 19.

16. 41. 28	16. 36. 8	Lunæ centrum transf. remoto	37. 6. 30
17. 42. 16	16. 36. 56	Lunæ limbus transiit, centro	36. 52. 30
16. 46. 20	16. 41. 00	Saturnus transiit —— ——	34. 8. 00
16. 59. 31	16. 54. 11	Stella Telescopica *a* transiit	33. 45. 30
17. 29. 53	17. 24. 33	Austr. Colli Leonis *n* transf.	33. 18. 30
		Ascensio Rect. ☽ 135.41.40	
		Dist. a Polo Bor. 75.23.20	

ANNO MDCCXII.

Temp. per Horolog.	Tempora correcta.	Die Saturni, Januarij 12. 1712.	Distantia a Vertice.
7. 40. 50	7. 34. 00	Medium Eclipsis Lunaris, quo tempore Chorda partis in Luna deficientis erat 24. 30 ; maximus autem defectus 8. 30 a parte Borea. Lunæ Diam. 30. 48.	
11. 39. 52	11. 33. 6	Cancri ♋ *Bayero* transiit ——	32. 59. 10
12. 13. 46	12. 7. 00	☽ centrum transiit, remoto	34. 14. 10
40. 46	12. 34. 00	Saturnus transiit —— ——	33. 12. 00
43. 16	12. 36. 30	Cancri sequens ad ♑ transiit	35. 22. 20
13. 36. 44	13. 29. 58	Cor Leonis transiit ——	38. 6. 55
		Ascensio Rect. ☽ 127.25.30	
		Dist. a Polo Bor. 72 31.00	
		Die Jovis, Martij 6.	
7. 39. 8	7. 38. 8	♊ 80 *Catal. Brit.* transiit —	30. 29. 30
7. 49. 42	7. 48. 42	Geminorum 86 *l* transiit —	30. 51. 45
7. 54 45	7. 53. 45	Lunæ limbus transiit, centro	30. 50. 40
7. 55. 48	7. 54. 48	☽ centrum transiit, proximo	30. 35. 30
8. 1. 41	8. 0. 41	Nona Cancri *μ* transiit —	29. 4. 45
		Ascensio Rect. ☽ 116.14.40	
		Dist. a Polo Bor. 69.22.50	
		Die Mercurij, Maij 7.	
9. 47. 38	9. 46. 2	Virginis 70 *Catal. Brit.* transiit	66. 9. 50
9. 48. 48	9. 47. 12	Virginis 71 transiit —— —	65. 45. 30
9. 52. 51	9. 51. 15	Ejusdem 75 transiit ——	68. 7. 40
10. 9. 36	10. 8. 00	Lunæ limbus transi. centro	69. 12. 30
10. 10. 43	10. 9. 7	Lunæ centrum transi. remoto	69. 28. 35
		Ascensio Rect. ☽ 208. 4.30	
		Dist. a Polo Bor. 107.45 50	

Die

Temp. per Horolog.	Tempora correcta.	Die Jovis, Maij 8. 1712.	Distantia a Vertice.
10. 52. 2	10. 50. 00	Libræ 8 *Catal. Brit.* transiit	74. 51. 50
11. 1. 35	10. 59. 33	Scorpij γ sive Libræ 15 tran.	75. 32. 30
11. 8. 2	11. 6. 00	Lunæ limbus transiit, centro	73. 42. 30
11. 09. 16	11. 7. 14	Lunæ centrum transf. remoto	73. 58. 20
11. 50. 33	11. 48. 31	Scorpij A transiit ———	75. 51. 10
11. 57. 34	11. 55. 32	Media frontis ♏ ♪ transiit —	73. 12. 10
		Ascensio recta ☽ 223.45.00	
		Dist. a Polo Bor. 112.16.10	
		Die Saturni, Maij 10.	
12. 18. 05	12. 16. 30	Cor Scorpij *Antares* transiit	77. 10. 00
13. 3. 48	13. 2. 13	Serpentarij A transiit ——	77. 32. 50
13. 18. 13	13. 16. 38	Lunæ centrum transf. remoto	78. 1. 30
13. 19. 30	13. 17. 55	Lunæ limbus transiit, centro	77. 46. 05
13. 35. 25	13. 33. 50	Prima Sagittarij *p* transiit —	79. 4. 20
14. 16. 8	14. 14. 33	Sagittarij λ transiit —— ——	76. 57. 00
		Ascensio Rect. ☽ 258.03.20	
		Dist. a Polo Bor. 116.20.15	

In Exemplari Observationum Anni 1712, a *D. Flamsteedio* ad Regiam Societatem missо, Observatoris nomen in titulo erasum esse videtur; & ipso sic præcipiente, ad calcem subscripta sunt hæc verba.

Obs. & Transcripsit Jos. Crosthwaite.

VII. De Legionibus *Epiſtola, ad Virum Clariſſimum Doctiſſimumque* Hans Sloane, *M. D. Regiæ Societati a Secretis, Coll. Medd. Lond. Sodalem, et Medicum Regium, data, a* Guil. Muſgrave, *M. D.*

POST tot tantoſque Auctores, qui de re militari *Romanorum*, et in ea de Legionibus ſcripſerunt, et quidem enucleate, ſupervacaneum exiſtimari poteſt et actum agi, ſiquid amplius hujuſmodi tentaretur: Cum vero in componendo, ad *Julij Vitalis*, Viceſimani Epitaphium, Commentario, *Legionum* Hiſtoriam inſpicere, neceſſe habuerim; et in *Lipſio*, *Savilio*, *Salmaſio*, *Robertello*, *Roſino* (ne dicam alios, eruditione et doctrina claros) hanc ob cauſam excutiendis, alia non ſatis explicata, alia minus ſana et auxilium poſtulantia, tradi repererim; in animum venit, Animadverſa noſtra chartae mandare, et, uti Studiorum et Vitae ratio occupatae ſineret, in unum colligere. Habes igitur, Vir doctiſſime, quod in hoc genere lucubravi, de *Legionibus* Spicilegium, *Julij Vitalis* ergo collectum; Tibi vero, tanquam amoris et obſervantiae in Te meae monumentum, tanquam optimo eorum et Judici et Patrono, cui omne Literarum genus eſt in pretio, inſcriptum. Hiſce præfatis, ſine mora rem aggredior.

LEGIO res, et vox *Romana* eſt, a legendo milites in dilectu (1) ſumta. *Legionum* ante *Auguſtum Caeſarem*, alius omnino ſtatus ac conditio fuit, atque poſt illum Imperatorem: ſive earum *Numerum*, ſive militum in earum ſingulis contentorum (de his duobus verba præcipue facturus ſum) animo contemplemur.

ANTE

(1) Varro de L. L. Lib. IV.

ANTE *Auguſtum* illae Ducum erant notae in gerenda repub. eximiae virorum, et ab iis, a quibus ſeu dilectae, ſive rectae fuerunt, aliquando *Nomina* cepere. *Legiones* a *Valerio Flacco* conſcriptae, ab eo dictae ſunt (2) *Valerianae*; ſed cum iiſdem imperitavit *Fimbria*, dictae ſunt ab eo (3) *Fimbrianae*.

MILITUM in *Legione* numerus ſtante Repub. dubius, alias major, alias minor fuit; ſed qui, maxima ex parte, gradatim auctus: Ita vero, ut plerumque minor, quam ſub Imperatoribus inveniretur. *Romuli* prima *Legio* Peditum tria millia, ſecundum *Varronem*, eſt complexa, [*Milites* (4), ait, *quod trium millium primo Legio fiebat.*] *Plutarchus* (5) hiſce trecentos Equites adjecit. Poſtea pro uſu Reipub. et Senatus arbitrio, ad quatuor (6) millia, ad quingentos (7) ſupra quatuor millia, ad quina (8) millia et ducenos Pedites, ad ſena Peditum millia, et Equites trecenos, accrevit. Id autem, quod diligenter obſervandum, non ex *Romanorum* more uſitato, et communi uſu, vel lege aliqua, ſed vel ex periculo quodam imminente, (ut in Bellis *Punico* (9), *Macedonico* (10), *Mithridatico* (11),) vel Imperatoris (uti *Marii*, in Bello (12) *Jugurthino*; *Antonii*, in Bello (13) *Civili*) auctoritate, non ex Senatus decreto factum eſſe liquet.

HIS, de militum in *Legione* numero, ſub Regibus et Reipub. initio dictis, adverſari cenſentur ea, quae ex *Plutarcho* et *Eutropio* citantur. A *Plutarcho* (14) ſcriptum

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(2) *Salluſtii* Fragmenta, et ad ea Douzae Notas. Cantabrigiæ, MDCCX. pag. 73. (3) Pag. 74. (4) *Varro* de L. L. Lib. IV. (5) In Romulo. (6) *Livii* Lib. VI. Cap. XXII. (7) Lib. VII. Cap. XXV. (8) Lib. XLII. Cap. XXXI Cum quina millia et duceni pedites ex veteri inſtituto darentur in Singulas Legiones. Vide ad hunc locum Doctiſſimi *Perizonii* notam. (9) Livii L. XXIX. Cap. XXV. (10) L. XLII. Cap. XXXI. (11) Appianus de Bellis Civilibus, Lib. IV. (12) Salluſtii Bellum Jugurthinum § XCI. Roſini Antiquitates Rom. Lib. X. Cap. IV. (13) Appianus Alex. de Bellis Civilibus, L. V. (14) In Romulo.

tum est Διπλασιαθείσης ὧν τῆς πόλεως, ἐκλὸν μὲν ἐκ Σαβίνων παλαίκιοι προσκαλεσάμενοι, αὐ δὲ λεγεῶνες ἐγένοντο, πεζῶν μὲν ἑξακισχιλίων, ἱππέων δὲ ἑξακοσίων. Id est, *Civitate jam in duplam aucta*, Sabinis *ea donatis, ex iis alios centum Patricios eligebant : Legiones autem fiebant Peditum sex millium, Equitum vero sexcentorum.* Quae utique verba moras *Stewechio, Savilio, Rosino, Panvinio, Sigonio* facientia, ex *Dionys.* (15) *Halicarnassensi* optime nostra quidem opinione sic explicantur. Erant *Romulo*, post odiosam illam cum *Remo* fratre pugnam, e veteribus colonis, qui cum eo *Romam* condidere, quasi tria Peditum millia, pauciores quam trecenti Equites. Civitate vero duplicata, et cum ea similiter Patriciorum numero, duplicata etiam est Militia : Sic, ut *Plutarchus* non tam de numero militum in una eademque Legione, quam de numero Legionum aucto (pariter atque de aucta Civitate, et de numero patriciorum aucto)itaque de militibus in iis συναθροισμένοις intellegi mereatur. Quae quidem ejus significatio, illorum temporum mori cum primis convenit: Certissimum enim est (imo quidem, ipso tradente *Plutarcho* (16), certissimum) Legionem a *Romulo*, quod ante dixi, institutam, Peditum fuisse trium millium, Equitum trecentorum. Unum errasse videtur Historicus, in re militari non nimis accuratus, quod primas Romuli Legiones Συντάγματα τετραπλικὰ, referat in plurali numero ; quando diligentissimus investigator antiquitatis, Varro [*trium millium*, (17) ait, *primo Legio fiebat, ac singulae Tribus* Tatiensium, Ramnium, Lucerum *millia singula militum mittebant* :] quod de unica tantummodo *Legione* subintellegendum, et lucem isti foenerat interpretationi. *Optimi*

Scriptoris

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(15) Dionys. Halicarnassens. Lib. II. § 16. (16) In *Romulo*. Κτισθείσης τῆς πόλεως, τριῶν μὲν ὄσον δὶς ἐν ἡλικίᾳ πληθος, εἰς συντάγματα τετραπλικὰ διέλεγεν. Ἕκαστον δὲ σύνταγμα πεζῶν τειχιλίων ἓξ, καὶ τετρακοσίων ἱππέων. (17) Varro de Lingua Lat. Lib. 4to.

Scriptoris (ſcil. Plutarchi) *bonam hanc mentem mavult* Lipſius (18), [Romulum *duplicaſſe Legiones populo jam duplici, et binas feciſſe tot millium.*]

EUTROPII dictum (19) eſt [*Cum* Latini, qui a Romanis *ſubacti erant, milites præſtare nollent, ex* Romanis *tantum tirones lecti ſunt, factæq; Legiones decem, qui modus ſexaginta vel amplius armatorum millia efficiebat.*] Fallitur, inquit doctiſſima Faeminarum *Anna* (20), et ita erraſſe *Eutropium* miratur, cum expreſſe *Livius* (21) hac de re [*Ubique non urbana tantum, ſed etiam agreſti juventute decem Legiones ſcriptae dicuntur, quaternum millium et ducenorum peditum, equitumque trecenorum.*] Ego potius, quamvis a Femina tam illuſtri diſſentire vix ſuſtineam, *Eutropii* manuſcripti exſcriptorem erraſſe puto; (neque enim Hiſtoricus, diligenter magna ex parte et accurate ſcribens, levi de cauſa temereque arguendus,) et quidem hunc in modum erraſſe. Scripſiſſe videtur *Eutropius* [XL, *vel amplius armatorum millia.*] Exſcriptor autem, literas numerales, quod in proclivi eſt, tranſponendo [LX.] Hoc cum *Livio*, unde id hauſiſſe videtur *Eutropius*, adamuſſim quadrat.

ALIUD eſt, quod a ſignificatione vocis *Centuria* ductum, opinioni de militum in Legione ſub prima Repub. paucitate, videatur oppugnare; *Varro* (22) ait [*Centuriae, quae ſub uno* Centurione *ſunt, quorum Centenarius juſtus numerus:*] Hac Etymologia quidam, ſed nec ij de Literatorum vulgo, freti, cum Legio Centuriones habet ſexaginta, quod ita eſſe Lex juſſit (teſtante *Dionyſio* (23) *Halicarnaſſenſi*, et apud *A. Gellium Cincio* (24), ducto ſexageſimo in centeſimum numero, *Legionem* militum ſex

 millia,

(18) De Militia Rom. Lib. I. Dial. V. (19) Lib. II. §. VI. (20) In ad eum Eutropii locum Notis. (21) Lib. VII. Cap. XXV. (22) Loco jam citato. (23) Antiq. Roman. IX. Cap. X. (24) Noct. Attic. Lib. XVI. Cap. IV.

millia, quasi calculi auctoritate, continere pronunciant. Sic a non nemine dicitur [*Legio sexaginta Centuriarum, seu sex millium.*] At minime novum est, voces a prima significatione plurimum descisscere. Vocem hanc *Centuriam*, utut de numero centenario primum usurpatam, successu temporis de numero multo minori fuisse dictam, ex *Tacito* (25) patet. Milites in seditione *Germanica* sub *Tiberio* saevitiam Centurionum ulciscentes, [*in eos invadunt, prostratos verberibus mulcant sexageni singulos, ut numerum Centurionum adaequarent.*] Manifestum hic sexagenis solum praefuisse Centurionem. Quid quod isthuc verbo tenus argumentum, nequaquam ipsa cum re concordet: cum in omni *Romana* Historia, quae *initio reipub.* militum sex millia comprehendat, Legio nulla reperiatur.

SUB exitum Reipub. cum, é viris in ea principalibus, suo fere quisque usus est ingenio, *Luculli* (26) Legiones habuerunt singulae sex millia Peditum, trecentos Equites. *Caesaris* Legiones millium erant ternorum: [Caesar *cum Legionibus quæ terna millia militum* Italorum *habuerunt*, Gallias *subegit.*] Ita *Sextus Rufus* [27]. Nobilis *Savilius*, nescio qua auctoritate, legit *quaterna*. *Antonius* (28) post Proelium *Philippicum* de Legionibus, μετὰ τῶν συνταττομένων, id est, mistis auxiliis, ita scripsit, ut Legionum singula sex millium sit; adeoque sine auxiliis, trium. Idem in *Luculli* Legionibus suspicandum arbitror, adnumerari scil. Auxilia; et ad numerum ter millesimum eas, per se consideratas, redigi oportere.

ALIA sub *Caesaribus* Legio fuit, ut in aliis plerisque rebus, ita praesertim in numero militum; qui jam inde, *Caesarum* mandato, maxima ex parte sexies millesimus, interdum eo major invenitur. Hoc ex *Vegetio* manifestum

(25) Annalium Lib. I. Cap. XXXIII. (26) Appian. de Bellis Mithridat. pag. 368. (27) In Breviario. (28) Appian. de Bellis Civilibus, Lib. V. p. 1075. Ed. Amst. MDCLXX.

ſtum eſt, de hac re ita verba faciente (29), [Romani *Legiones habent, in quibus ſingulis ſena millia, interdum amplius militare conſueverunt*;] et (30) alio loco [*Legio plena habet Pedites ſex millia centum, Equites ſeptingentos viginti ſex.*] Non de ſuo tantum aevo *Vegetius* haec ſcripſiſſe judicandus, ſed de illorum, a quibus ſuam de re militari conſcripſit Epitomen: in quorum numero fuit *Cornelius Celſus*; de quo *Volaterranus* (31), [Cornelius Celſus, *inquit, de Arte Rhetorica*, de re militari, *de re ruſtica, deque medicina libros conſcripſit, verum ad nos tantum pervenit ejus medicina, oratorio modo conſcripta.*] Ipſius etiam *Auguſti* de re militari Conſtitutiones (quarum una a *Macro* J. C. in Pandectis (32) ſervata eſt) *Vegetius* ſe evolviſſe narrat. Quinimo profitetur (33) [*Nihil ſibi auctoritatis aſſumere, ſed horum quos ſupra retulit, quae diſperſa ſunt* (in *Catone, Celſo, Frontino, Auguſti, Trajani, Adrianique* Conſtitutionibus) *velut in ordinem epitomata conſcribere.*) Quare veriſimile duco, ſub *Auguſto*, vel *Tiberio*, (quo Imperante *Celſus* ſcripſit) militum in Legione numerum ad ſexies milleſimum augeri, et nunquam poſt attenuari, eoque numero minorem reddi; quod partim ex *Frontino*, partim ex eo junioribus *Modeſto, Heſychio*, et *Suida* patet. *Modeſtus* (34) ait [*Iis decem Cohortibus* Legio plena *fundatur, quae habet Pedites* VI *Mill.* CV, *Equites* DCCXXVI.] Ille *Tacito* Imp. floruit, eique [*de vocabulis rei militaris*] Libellum inſcripſit. *Heſychius* (35) Λεγεὼν πλῆθος στρατιώτης ἢ ταγμα ἐξ χιλιάδων ἑξακοσίων ἑξήκοντα ἕξ. *Suidas* (36) autem Λεγεὼν ὅσοι Ρωμαίων ἑξακισχίλιοι στρατεύονται. *Legio* apud *Romanos* ſex millibus militum conſtans. Adeo patet ab *Auguſto*, *Romani* Imperii conditore, ad ejus uſque terminum, Legionem ſena millia (et eo amplius aliquando)

(29) De re militari; Lib. II. Cap. II. (30) Cap. VI. (31) Lib. XIV. (32) Digeſt. Lib. XLIX. Tit. XVI. (33) De re militari, Lib. Cap. VIII. (34) Lugduni Batav. ex officina Plantin. CIↃIↃXCII. pag. 291. (35) Voce Λεγεὼν. (36) Ibi.

aliquando) continere. Haec de numero Militum in *Legione plena* hactenus.

AD Legionum altero loco numerum descendamus, et quotus ille fuerit, eodem tempore, quoad ejus fieri potest, investigemus. Diversis temporibus diversum fuisse constat, et necesse est; prout Bella nunc gravia, nunc plura postularent, aut pace parum opus essent milites. Ex hac varietate de populi *Romani* variis aetatibus, ut et in earum singulis de ejus robore, uno conspectu sed et amoeno, possimus aliqua ex parte judicare.

ROMULI sicut dictum est, primo fuit Legio tantum una: Deinde, in duplum aucta Civitate, binae. Tametsi *Milites Romani* (37) ad quadraginta mille, et eo amplius sub *Romulo* augerentur; tametsi [*omnem militarem disciplinam, artemque bellandi*] *Tullus Hostilius* a (38) *Floro* condidisse tradatur; Legionum tamen numerum, sub Regibus, ultra binas augeri nullus invenio.

IN *omnibus auctoribus*, ait (39) *Vegetius*, *invenitur*, *singulos Consules adversus hostes copiosissimos*, *non amplius quam binas duxisse Legiones*, *additis auxiliis Sociorum. Tanta in illis erat exercitatio*, *tanta fiducia*, *ut cuivis bello duae Legiones crederentur posse sufficere:*] quo nihil a vero magis alienum. Nam e diverso *Dionysius*, Auctor gravissimus, in Bello contra *Volscos*, (40) Κὶ γὴ δέκα στρατιωτικὰ τάγματα ἐξ ἀνδρῶν τετρακισχιλίων ἕκαστον. Τούτων τρία μὴν ἕκαστον τῆς ὑπάτων ἔλαβεν καὶ τῆς ἱππέων ὅσον ἑκάστῳ προσῆκεν. *Decem*, inquit, *Legiones conscriptae sunt*, — *ex his Consules utrique ternas accepere*, *et Equitum quantum unicuique distributum est.*] *Livius* (41) de eodem Bello [*Legiones decem effectae sunt. Ternae inde datae Consulibus: quatuor Dictator usus est.*] Plures saepenumero fuisse Legiones certissimum

(37) Dion. Halicarn. Antiquit. Roman. Lib. II. Cap. XVI. (38) Lib. I. Cap. III. (39) Lib. II. Cap. IV. (40) Dionys. Hal. Antiq. Roman. Lib. VI. Cap. XLII. (41) Lib. II. Cap. XXX.

certissimum est, et earum magna ex parte duas tantum sub imperio Consulum, reliquas Proconsulum, Praetorum, Propraetorum, Praesidum, Legatorumve mandatis obsequi.

Q. *Fabio* quartum et *M. Marcello* tertium Cos. A. U. Cond. circiter 538. [*Duodeviginti Legionibus bellum geri placuit.*] (42)

Fulvio et *Sulpitio* Coss. id est, A. U. Cond. circiter 541, [*Tribus et viginti Legionibus Romanis bellum terra marique gestum.*] (43)

Ante praelium *Pharsalicum* erant *Caesari* Legiones X, *Pompeio* XI; praeter auxilia quamplurima. (44)

Cassio et *Bruto*, cum *Antonio* et *Octavio Caesare*, pugnam inituris (45), erant pariter utrinque Legiones XIX. in summa XXXVIII.

Octavio Caesari, devicto *Lepido*, Legiones erant quatuor supra quadraginta. (46)

Eidem porro se a pugna *Actiaca* (47) submisere Legiones *Antonii* numero XIX.

Octavio rerum *Romanarum* undique potito, (reformata jam militia, et militum in Legione quavis numero ad sexies millesimum aucto) Legiones (48) erant XXIII; vel ut alij volunt XXV.

Sub *Tiberio* (49) Legiones erant XXV. *Neroni*, tradente *Tacito*, Legiones erant quinque supra viginti: praeter alias Legiones duas Classicas, et in urbe XII. cohortes. Fuerunt igitur, ex *Lipsij* (50) calculo, civiles ei copiae, Legionum circiter XXX.

Eundem *Adriano* fuisse numerum, ex celebri illo *Favorini* dicto manifestum est.

Dionis Cocceiani aevo, i. e. Imp. *Alexandro Severo*, Legiones (48) erant XXIX.

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(42) Livium, Lib. XXIV. Cap. XI. (43) Lib. XXVI. Cap. I. (44) Appianum de Bellis civilibus Lib. II. (45) Lib. IIII. (46) Plutarchum in Antonio. (47) Plutarchum in Antonio (48) Dionem, Lib. LV. (49) Taciti Annal. Lib. IIII. (50) Analecta ad Militiam Romanam.

AT omnium maxime Lapides ij ſunt aeſtimandi, quorum alter *Capitolinus*, alter *Romae* apud *Maffaeos*, numerum et nomina exhibent Legionum: Horum Inſcriptiones cum productis nominibus, accurate magis, quam unquam vidi, impreſſas, in medium ferani.

Romae, in *Capitolio*, Columella rorunda.
Nomina Legg.

II. AVGuſta.	I. ADIVTrix.	IIII. SCYTHica.
VI. VICTrix.	IIII. FLAViana.	XVI. FLAViana.
XX. VICTrix.	VII. CLAVDiana.	VI. FERRAta.
VIII. AVGuſta.	I. ITALICa.	X. FRETEnſis.
XXII. PRIMigenia.	V. MACEDonica.	III. CYRENaica.
I. MINERvia.	XI. CLAVDiana.	II. TRAIana.
XXX. VLPiana.	XIIII. GEMina.	III. AVGuſta.
I. ADIVTrix.	XII. FVLMinatrix.	VII. GEMina.
XIII. GEMina.	III. GALLICana.	III. ITALICa.
I. PARTHica.	II. PARTHica.	III. PARTHica.

Qui ſequitur Legionum Catalogus, trium numero auctior eſt.

II. AVGuſta.	II. ADIVTrix.	IIII. SCYTHica.
VI. VICTRix.	IIII. FLAViana.	XVI. FLAViana.
XX. VICTRix.	VII. CLAVDiana.	VI. FERRAta.
VIII. AVGuſta.	I. ITALICa.	X. FRETEnſis.
XXII. PRIMigenia	V. MACEDonica.	III. CYRENaica.
I. MINERvia.	XI. CLAVDiana.	II. TRAIana.
XXX VLPiana.	XIII. GEMina.	III. AVGuſta.
I. ADIVTrix.	XII. FVLMinatrix.	VII. GEMina.
X. GEMina.	XV. APOLlinaris.	II. ITALICa.
XIIII. GEMina.	III. GALLICana.	III. ITALICa.
I. PARTHICa.	II. PARTHICa.	III. PARTHICa.

INSCRIPTIONES has *Dionis* aevo posteriores esse, palam est ex eo, quod plures utraque Legiones habeat, quam ab illo memorentur; unam scil. *Capitolinam*, *Maffaeanas* quatuor. Hae de Legionum numero Dissertationem claudunt; quando nihil amplius hac de re apud Historiae Romanae Conditores observare contigit.

HAEC, ex fidei bonae Auctoribus et Lapidibus accepta, notatu digna praebent quam plurima.

Primo, sub Consulibus plures eodem tempore fuisse Legiones, quam sub Imperatoribus; et sub Regibus omnium pauciſſimas.

Deinde, sub Consulibus plures in Bellis Civilibus, quam externis.

Deinde, sub Consulibus minus certum earum esse numerum, et Copias magis variari, quam sub Regibus aut Imperatoribus.

Deinde, sub Imperatoribus, numerum quasi solennem, ut ait *Lipsius*, esse XXX circiter Legionum.

Deinde, nemini unquam hominum plures fuisse Legiones, quam *Octavio Caesari*; uti nemini unquam *Romanorum*, ex Sententia (51) *Lipsij*, Militiam florentiorem, quam *Trajano*.

Postremo, ex uno Legionum numero, de viribus exercituum, minime posse recte concludi.

BINI hic Canones sanciri possunt, qui in *Romana* Historia, rei praesertim militari intellegendae, usui erunt non exiguo. Horum primus est: *Ubi militum numerus in exercitu, nullus autem Legionum numerus exprimitur*, (qui plerumque *Appiani* mos est) *ut exercitus ad Legiones reducatur, advertendum est illius aevum, et in eo quotus soleret esse militum in Legione numerus: Ducto enim eo in militum totius exercitus numerum, emerget in eodem Legionum numerus.* e. g. *Luculli* contra *Mithridatem* exercitus

N fuit

(51) Analecta ad militiam Romanam.

fuit (tradente (52) *Appiano*) Peditum 30,000, Equitum 1600 : id eſt (dato in ſingulam Legionem numero 6200, qui miſtis auxilijs fuit iſtius aevi militum in Legione numerus) Legionum quinque. Septuaginta millium exercitus a *Boadicia* (tradente (53) *Tacito*) occiſus eſt ; id eſt, datis, ſecundum iſtius ſeculi morem, unicuique Legioni 12000, ſex circiter Legiones.

CANON alter eſt, *Datis in Legione cujuſvis ſaeculi militum, una cum Legionum in ejuſdem ſaeculi exercitu numeris, orietur inde militum in eo exercitu numerus.* Hinc patet *Romuli* milites, Legione primum una comprehenſos, non exceſſiſſe 3000, vel ſecundum *Plutarchum* 3300. Deinceps, admiſſis *Sabinis*, et cum Civitate duplicata Legione, 6000, vel 6600. Nec quidem plures, etiamſi (quod ſupra diximus e *Dyoniſio*) cum ex hominum conſpectu ſublatus hic eſſet, erant *Romae* Milites 45,000. In Bello contra *Volſcos*, *Aequos*, et *Sabinos*, cum X Legiones eſſent, et in omni Legione 4000 Milites continerentur, Militum numerus 40,000 eſſet, neceſſe eſt. Sub Imperatoribus cum Legiones fere XXX, numero aequabant, Milites, quoties illae plenae erant (ducto ſcil. 30 in 6500) 195,000, vel 200,000 plus minus habuere : et additis Sociis, quorum erat aequalis numerus, 400,000. Haec Imperii fuit *Romani* Magnitudo.

DE *Legionibus Romanis* ea ſunt quae habui dicere : quibus abſolutis, optari reſtat, Te, ut moris fuit εὐπράτ]ειν, ita ſemper ὑ]ιαίνειν.

Iſcae Dunmoniorum,
Idibus Maiis MDCCXIII.

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(52) Appianum de Bellis Mithridaticis. (53) Annalium Lib. IV.

VIII. *The Husbandry of Canary Seed. By the Reverend Mr.* Edward Teniſon.

TO prepare Land for this Seed, let it be broke up ſome time in *April*, and plough'd again about *Midſummer*, and plough'd again in *Auguſt*, that by frequent Tillage the Weeds may be burnt up and deſtroy'd. Plough the laſt time about the latter end of *February*, or the beginning of *March*, if the Seaſon proves dry; if not, you had beſt wait for a dry Seaſon; for in ſuch a Seaſon only will the Ground be fit to receive the Seed. With a Hoe, (that has a Bit about the bigneſs of an Onion-Hoe,) you muſt from time to time carefully cut up the Weeds. If they are not kept entirely under, much of the Seed will be loſt for want of ripening. In very good Land half a Buſhel of Seed will be enough to ſow an Acre. It will thrive beſt upon a ſtiff Clay: It will grow upon any ſort of loamy Land, that is Rich enough to bear Hemp. If you apprehend that the Land is not ſufficiently ſtrong, you will do well to allow from half a Buſhel to ſeven Gallons of Seed to ſow an Acre with.

The Seed is ripe ſooner or later, according as the Spring affords you an early or late Seaſon of ſowing it. In ſome Summers 'tis cut in *Auguſt*, but the moſt uſual time is after Wheat-Harveſt. When it is cut, it muſt in moſt Years lie 5 or 6 Days in ſwarth, and then be turn'd, and lie till one ſide is dry'd and rotted as much as the other, which may be about 4 or 5 Days longer. The certain number of Days can't be fix'd, becauſe they

muſt be more or leſs, according as the Weather proves fair or rainy.

The reaſon of its lying ſo long in ſwarth is, that the lower Heads of the Seed (being expoſed to the Air Wind and Sun) may the better perfect their ripeneſs, and the Graſs and Weeds that ſprung up with the Stalks be thoroughly wither'd, and the Ears or Heads well and ſufficiently rotted, that the Seed upon threſhing may come out clean.

The Produce upon Land that is very good, is about ſix Quarters per Acre.

If the Land be but indifferent, or if the Weeds be not kept under, then from four to five Quarters upon an Acre is as much as you can expect.

The Price of Seed is from two Pounds to ſix Pounds per Quarter; but the moſt uſual Price is from Forty Shillings to Three Pounds.

It is difficult to Threſh. So much of the Seed as, after threſhing, is beaten out (as ſoon as 'tis fann'd) is to be run thro' a Wire Sieve (ſuch as is uſed to ſeparate Cockle from Corn) and the Husks of every ſifting, that will not paſs through the Sieve, are to be thrown by in a heap to be threſh'd over again.

The ordinary Price for threſhing is Five Shillings, but in ſome Years the Threſher has Six Shillings per Quarter.

IX. *Extracts of several Letters from* Mr. Edward Lhwyd, (*M. A.*) *late Keeper of the* Ashmolean Museum *in* Oxford, *to Dr.* Rich. Richardson, (*M. D.*) *of* North Bierly *in* Yorkshire; *containing Observations in Natural History and Antiquities, made in his Travels thro'* Wales *and* Scotland. *Communicated by Dr.* Hans Sloane, *R. S. Secr.*

Oxford, Novemb. 24. 1696.

THE next Day after we parted [at *Kàpel Kirig*] I found plenty of the *Bistorta*, and the *Nasturtium petræum* of *Johnson*, and I think a new Plant in the small Lake of *Phynnon Urêch*, where the *Subularia* grew. I sent Roots of the *Bistorta* and *Nasturtium*, both to the D. of *Beaufort*'s and to this Physic Garden; but whether they live or no I know not, having not been yet in Mr. *Bobart*'s Garden. I met with several rare Plants in other Places; as *Echium marinum* J. B. *Asparagus sylvestr. Eruca marina*; *Eruca sylvestris laciniata lutea*; *Dulcamara marina*; *Tithymalus marit. Beta marina*; &c. in *Caernarvonshire* and *Angleſey*: And in *Meirionydhshire* I found good store of our *Snowdon* Plants at *Kader Idris*, and *Balsamina lutea* in the High Road near a Place called *Càpel Begla*. In South *Wales* I found several Plants common, which I had never seen in North *Wales*; such as *Eruca sylvestris*, common on the Walls of their Towns and Castles; *Asplenium s. Ceterach Officin. Centaureum luteum perfoliatum*; *Linum sylvestre*; *Fagus*, &c. in *Pembrokshire*

brokſhire: I met with two, which I ſuſpect for new, *viz.* a *Tripolium*, and an *Anthyllis leguminoſa ſupina, flore coccineo.*

Amongſt ſeveral others, I found one large Cryſtal above *Phynnon Vrêch* about 7 Inches long, and as thick as my Wriſt. In *Monmouthſhire* I met with large petrifyed *Vertebræ*, and ſome few form'd Stones in each County: But I employed the greateſt part of my time in copying Inſcriptions, taking Catalogues of Welſh Manuſcripts, *&c.*

Chepſtow in *Monmouthſhire*, May 13. 1697.

SINCE my coming from *Oxford*, I ſpent 3 or 4 Days in the Coal-Pits of the Foreſt of *Dean*; where I found (I think) all your Capillaries, beſides ſome other new Plants, three or four whereof are here figured; together with two Species of *Aſtropodium* gather'd on the *Severn* Shoar, the only Rarities of the kind, I ſuppoſe, that have been diſcover'd. I doubt not but (as you ſay) the Coal Plants have been obſerved by the Workmen long ſince, tho' they eſcaped the Notice of Naturaliſts, who till this laſt Centnry contented themſelves with bare reading and ſcribling Paper. I find it well known to all our Country Colliers by the Name of *Carreg Redynog*, i. e. the Ferny Stone; and one Mr *Williams*, Archdeacon of *Cardigan*, who is a Perſon very curious and ingenious, told me he had obſerved much finer Patterns 25 Years ſince in the Coal-Pits of *Glamorganſhire* than ſome that I ſhewed him. The whole *Braken* that *Kirkman* mentioned was a noble Curioſity: We ſaw none ſuch in the Foreſt; tho' we found them much larger than thoſe you ſent. The Stalks of Fern and Hartstongue I think we often met with, but cannot ſay we ſaw any Roots. Indeed I know not well whether

Fig. 1.

Fig. 2.

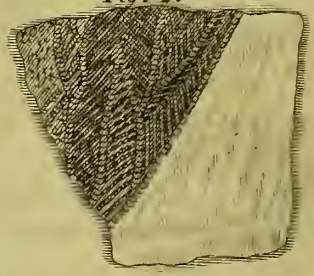


Fig. 4.

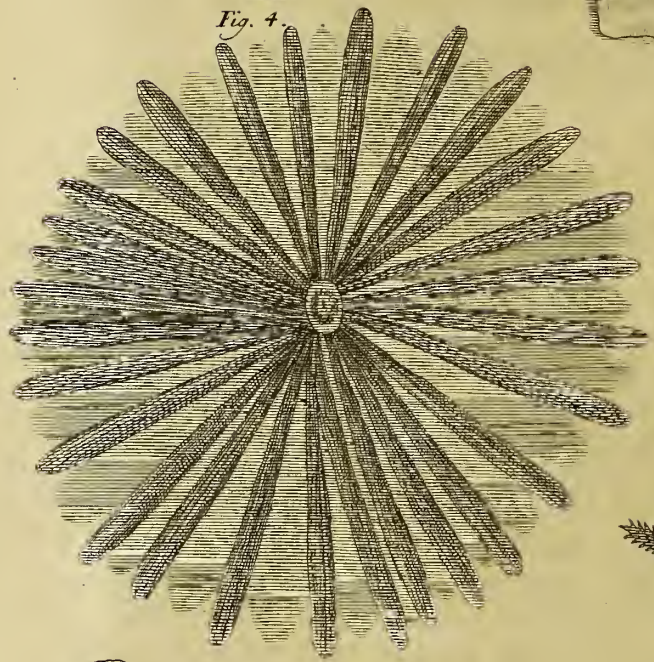


Fig. 3.

Fig. 6.

Fig. 5.

Fig. 7.

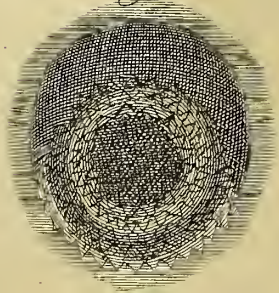


Fig. 8.

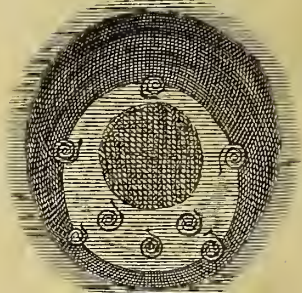
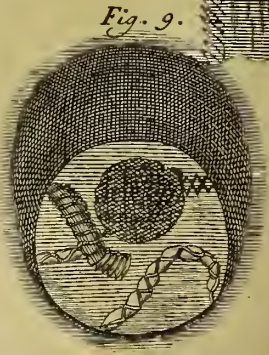


Fig. 9.



ther the Impreſſions of the Stalks might be eaſily diſtinguiſh'd from thoſe of the Roots. We alſo often met with the membranaceous ſubſtance of Leaves; and perhaps one or two of theſe Figures I ſend you are the repreſentations of ſome Flowers.

TAB. I. *Fig.* 1. *Aſtropodium furcatum: ſive ſtellæ marinæ Magellanicæ Radij lapidei.*

Fig. 2. *Aſtropodium ramuloſum: ſive ſtellæ arboreſcentis Virgultum lapideum.*

Fig. 3 *Hexapetalon carbonarium.*

Fig. 4. *Radiatula*, &c. *An Flos cujuſdam Chryſanthemi?*

Fig. 5. *Phyllitis trifolia.*

Fig. 6. *Abietis, an potius Lycopodij cujuſdam ramulus?*

Narberth, Pembrokſhire, June 19. 1698.

I Have been very inquiſitive about Coyns of the Princes of *Wales* ſince I began this Undertaking, but could never ſee one of them; tho' the Biſhop of *Bangor* (who is very well skill'd in *Britiſh* Antiquities) told me a Relation of his kept one of *Lhywelyn 'ab Iorwerth*, who was cotemporary with *Richard* I. and K. *John*, in his Pocket ſeveral Years, and ſhewed it many of the Biſhops Acquaintance, ſtill living, who confirm it. By the Princes of *Wales* I underſtand the *Britiſh* Princes from K. *Kadwaladr* about the Year 600. to the laſt Prince *Lhewelyn ap Gruffydh* about the Year 1280. I have found ſeveral of the more ancient *Britiſh* Coyns; whereof you ſee divers Figures in *Camden*. My Friend Mr *Nicholſon* quotes *Cæſar* for the *Britons* having no Coyns; whereas on the contrary *Cæſar*'s Words are, *Nummo ntuntur parvo et æneo*: Nor can I ſee any reaſon to doubt of *Britiſh* Coyns of all ſorts of Metal, till he or ſome other inform whoſe Coyns thoſe are which Mr *Camden* and other Writers take to be *Britiſh*.

The

The Druid Beads are generally Glaſs. Since the laſt Edition of *Camden* I have meet with 2 or 3 of them, that had a Snake manifeſtly painted round them: So that I take it for granted, the *Ova Anguina* of the *Britiſh* Druids were theſe Glaſs Beads; tho' thoſe of the *Gauliſh* were the Shells of the *Echini orbiculati laticlavij*.

Hay in *Brecon*, Sept. 19. 1698.

WE ſearched this Summer the high Mountain by *Brecnock* called *Y Vann uwch deni*, but found nothing in it new, nor any great variety of rare Plants. The moſt choice were *Sedum Alpinum ericoides*, in abundance; *Argemone lutea*; *Rhodia Radix*; *Muſcus cupreſſiformis*, and about half a dozen more of the common *Snowdon* Plants. *Lyſimachia Chamænerion dicta* is a common Plant (by the Name of *Lhyſie'r Milwr*, i. e. *Herba militaris*) in the Meadows through all the upper Parts of this County. We alſo met with *Sorbus legitima* and *Sorbus torminalis* (grown to as great a height as the *Ornus*) neither of which had ever occur'd before in *Wales*. But of all theſe Topical Plants I was ſurpriſed at none ſo much as the *Capillus Veneris verus* growing very plentifully out of a marly Incruſtation, both at *Barry* Iſland and *Porth Kirig* in *Glamorganſhire*, and out of no other Matter; and alſo that *Gnaphalium majus Americanum* ſhould grow on the Banks of *Rymny* River (which runs altogether over Iron Stone) for the ſpace of at leaſt 12 Miles, beginning near the Fountain-head in a Mountain of this County; and yet not a Plant of it to be ſeen elſewhere throughout *Wales*. In a great Lake called *Lhyn Savadhan* I found a pellucid Plant I had never met with before: The Leaves are extraordinary thin and tranſparent, in form not unlike ſmall Dock Leaves; but the middle Rib is continued beyond the extremity, ſo that

that each Leaf has a ſoft Prickle at the end: By which Note I hope you will be able to tell me what it is. We found there alſo the *Hippuris ſaxea*, and two elegant ſorts of ſmall Leeches, which I ſuppoſe not deſcrib'd.

The Limeſtone of this County affords ſmall *Gloſſopetræ* and *Siliquaſtra*; but they are but very ſcarce in compariſon of the quantity found in *Oxfordſhire*, *Northamptonſhire*, *Berks*, &c. The moſt conſiderable Rarities it affords are *Fayrie Cauſways*, which I call ſo in imitation of their *Giants Cauſway* in *Ireland*, *ſi liceat magnis componere parva*: for whereas theirs may be half a Mile long; ours ſeldom exceed 3 Foot. Our Lime Quarries yield two or three Bodies congenerous with it, tho' of a very different Form; and perhaps all may be referable to the Coralline Claſſe, which is the ſecond in my Catalogue.

TAB. I. *Fig.* 7. A green Adders Bead, adorn'd with Snakes Skeleton's of a Citrine colour.

Fig. 8. A black Adders Bead, adorn'd with 9 ſmall Snakes or *cornua Ammonis* of a whitiſh blew.

Fig. 9. An Adders Bead reſembling Cherry-tree Gum, adorn'd with a Snake chequer'd of blew and white.

Linlithgow in *Scotland*, Decemb. 17. 1699.

IN this Kingdom our Travels in the High-Lands were through *Cantire*, *Argyle*, and *Lorn*, beſide the Iſles of *Mac y Chormic*, *Mul*, and *y Columb Kil*; and in the Low-Lands through *Glaſgow*, *Sterling*, and *Edenbrough*. In the High-Lands we found the People every where civil enough; and had doubtleſs ſped better as to our Enquiries, had we had the Language more perfect.

We met with ſeveral Inſcriptions, but none of them *Roman*, nor indeed ancient: However, we copied all we met of Two hundred Years ſtanding, *&c.* for the

 ſake

ſake of the Orthography of the *Iriſh* Names, which are writ differently from what is now uſual.

We alſo took Figures of ſome Variety of their *Broaches*, or Silver and Braſs *Fibulæ* uſed by the Women to claſp their *Koleriv*, a Garment anſwering our Nightrails.

But what we were moſt diverted with, was their Variety of Amulets; many of which (if not all) were certainly uſed by the Druids, and ſo have been handed down from Parents to Children ever ſince. Some of theſe may be render'd in *Engliſh*, 1. *Snake-button.* 2. *Cock knee Stone.* 3. *Toad-ſtone.* 4. *Snail-ſtone.* 5. *Mole-ſtone.* 6. *Shower-ſtone*; and 7. *Elf-arrow.*

1. The *Snake-button* is the ſame deſcribed in the Notes on *Denbighſhire* in *Camden*, by the Name of Adder-Beads: But there are of theſe great Variety, as to Colour and Ornament; inſomuch, that betwixt *Wales* and the High-Lands, I have ſeen at leaſt fifty differences of them. In *Ireland*, though they are tenacious enough of all old Cuſtoms, I could hear nothing of them: So I conclude, that either the *Iriſh* had no *Druids*, or that their want of Snakes fruſtrated their advancing that Impoſture amongſt the People: But there were but a few Places where we inquired; and perhaps we may hereafter hear of them in other Parts of that Kingdom. Not only the Vulgar, but even Gentlemen of good Education throughout all *Scotland*, are fully perſwaded the Snakes make them, though they are as plain Glaſs as any in a Bottle.

2. The *Cock-knee* Stone is an *Echinites pileatus minor*, of Flint; which they firmly believe to be ſometimes found in the Knees of old Cock; and a Fellow in *Mul* proteſted to me (though I was never the nearer believing him) that he had with his own Hands taken one of them out of a Cock's Knee; and named two or three others, who had done the like.

3. The

3. The *Toad-ſtone* is ſome Peble, remarkable for its Shape and ſometimes variety of Colours. This is preſumed to prevent the burning of a Houſe, and the ſinking of a Boat: And if a Commander in the Field has one of them about him, he will either be ſure to win the Day, or all his Men ſhall fairly dye on the ſpot.

4. The *Snail-ſtone* is a ſmall hollow Cilinder of blue Glaſs, compoſed of four or five Annulets: So that as to Form and Size it reſembles a midling *Entrochus*. This, amongſt others of its myſterious Virtues, cures Sore Eyes.

5. The *Mole-ſtones* are Rings of blue Glaſs, annulated as the aforeſaid Snail Stones.

6. They have the *Ombriæ pellucidæ* (which are Cryſtal Balls, or Hemiſpheres, or depreſſed Ovals) in great Eſteem for curing of Cattle; and ſome on *May* Day put them into a Tub of Water, and beſprinkle all their Cattle with that Water, to prevent being Elf-ſtruck, bewitch'd, *&c*, And

7. As to this *Elf-ſtricking*, their Opinion is, that the Fairies (having not much Power themſelves to hurt Animal Bodies) do ſometimes carry away Men in the Air, and furniſhing them with Bows and Arrows, employ them to ſhoot Men, Cattle, *&c*. I doubt not but you have often ſeen of thoſe Arrow-Heads they aſcribe to Elfs or Fairies: They are juſt the ſame chip'd Flints the Natives of *New England* head their Arrows with at this Day; and there are alſo ſeveral Stone Hatchets found in this Kingdom, not unlike thoſe of the *Americans*. I never heard of theſe Arrow-heads nor Hatchets in *Wales*; and therefore would gladly be informed whether you have ever heard of their being found in *England*. Theſe Elf Arrow-heads have not been uſed as Amulets above thirty or forty Years; but the uſe of the reſt is immemorial: Whence I gather they were not invented for

Charms, but were once uſed in ſhooting here, as they are ſtill in *America*. The moſt Curious, as well as the Vulgar throughout this Country, are ſatisfied they often drop out of the Air, being ſhot by Fairies, and relate many Inſtances of it; but for my part I muſt crave leave to ſuſpend my Faith, untill I ſee one of them deſcend.

Near *Glaſcow* we found two Foſſils *toto genere* new: One reſembling ſmall Joynts of a Lobſter's Arm, but much longer; the other ſomewhat like large *Gloſſopetræ*, or perhaps like the *Mucro* of a *Pinna marina*. Theſe figur'd Stones are found there in an Iron ſtone, though I never ſaw them in that kind of Matter in *Wales*. We found both Shells and *Entrochi* gone off to that Subſtance, having changed their Matter and much of their Shape.

Near the ſame Town ſearching for theſe Foſſils, I found in the midſt of the Lime-ſtone ſome *Cochlitæ* compos'd of Flint; but *Conchitæ* of Spar, gone off ſo far from the ſhape of Shells, as hardly to be known, were it not from others in the ſame Place retaining their Shape more entirely.

The Principal of the College ſhew'd us Stones, he had lately procured for the Library; having *Roman* Inſcriptions. Theſe we copied, and ſeveral others elſewhere of the ſame Date; whereof ſome are printed in *Camden* (tho' not very correctly) and others not yet publiſh'd. They keep theſe Stones at *Glaſcow* very carefully in the Library; and the Principal was daily expecting two or three more that had been promiſed him.

Mr. *Southerland* gave me Specimens of the *Chamæpericlymenum*, *Adianthum acroſticon*, and *Pyrola Alſines flore Europæa*. I had nothing for him in exchange, but Samples of the *Vitis Idæa folijs Myrtinis criſpis Meretti*, together with ſome of the Berries. This I found plentifully for ſome Miles together in that —— and of *Mul*,

next

next to *Ey Columb Kil.* 'Tis very different from the common *Vitis Idæa ſempervirens fructu rubro*; being a larger Plant, much more branched; the Leaves of a crips'd Surface, and the Berries (which as they told me it retains all the Year) liker unto thoſe of Holly. Going up one of the high Hills of *Mul* we found *Rhodia Radix*; *Pes Cati*; *Cotyledon hirſut. Vaccinia rubra*; *Sedum Alp. trifido folio*; and (which I had never ſeen grow ſpontaneouſly) *Alchimilla Alpina quinquefolia.* We found in this Iſland a curious *Fucus arboreus* with a ruffl'd Stalk, whereof we took a Figure.

X. *An Abridgement of a Book intitl'd, A Deſcription of the Plague, which happened in the Royal City of* Dantzick, *in the Year* 1709. *Written in* High-Dutch *by Dr.* John Chriſtoph. Gottwald, *and Communicated by* Dr. Joh. Phil. Breynius, *as the beſt Account of that Diſtemper there Publiſh'd. Tranſlated by* C. J. Spregnell, M. D.

PART. I. *Containing an Hiſtorical Relation of the Plague.*

THIS dangerous and pernicious Diſtemper has now reign'd for ſome Years in many Cities, Towns, and Villages of the Kingdom of *Poland*, where it has ſwept away a vaſt Number of Inhabitants, and has even left ſome Places quite deſolate. As I have been credibly inform'd, it firſt began near *Pinczow* or *Pikzow* in the Year 1702. ſoon after the unfortunate Battle between the *Saxons* and *Swedes*. The next Year it appear'd here and there towards *Cracow* and *Ruſſia*, and had already cauſed great Mortality near the *Hungarian* Mountains, called *Crapack*; till it went Eaſtward to the Upper *Volhinia*, and again Weſtward to *Lemberg*.

In

In 1704. it raged very violently in these two Palatinates; so that *Lemberg*, the Capital City of *Russia*, lost a vast Number of its Inhabitants, and many to save their Lives were forc'd to fly from it. In Autumn it spread in the neighbouring Places that lye to the West and South, beginning in a Village called *Radymno*, on this side *Jarislow*; and afterwards invading other Places seated betwixt the Rivers *San* and *Volodarora*, it spread 'till it came towards the *Samber*.

In 1705. it left *Lemberg*, and went North and West to Great *Poland*, thro' *Jarislow*, *Sieniawe*, *Zamose*, and other adjacent Places; and continued in that part of the Country, as far as *Posen*, all that Year.

In 1707. it enter'd the Royal City of *Warsaw*, where it destroyed that Summer a vast number of Peop'e.

In 1708. it came nearer towards *Polish Prussia*, and broke out the latter end of *August* in *Thorn*; where it continued till the beginning of the next Year, and swept away no small number of Men.

This Approach made us very apprehensive of Danger: Publick Prayers were order'd in our Churches; and our Magistrates at the same time left nothing undone that could tend to our common Safety. Commerce and Communication with the Infected, and even suspected Places, were forbid: No sort of Merchandize or Effects that came from such Places was allowed Entrance, especially such sorts of Goods as might easily receive and retain the Contagion; as Wooll, raw Leather, Furrs, Beds, *&c.* All Strangers and Travellers were strictly examin'd, and none permitted to enter without sufficient Proofs, that they came from Places healthy and not infected: All our Inhabitants were caution'd neither to hold Correspondence with, nor, on any pretence whatsoever, to harbour those of infected Places, or to go to them.

These

Theſe and other neceſſary Precautions were taken, and by publick Edict enjoyned from *July* 11. 1708. to *February* 27. 1709. Notwithſtanding all which, the Diſtemper gradually inſinuated itſelf: For in the Month of *March*, 1709. there died out of one Diſtrict of the old Town, called *Raumbaum*, ſeven Perſons: The eight remaining was a young Girl, who by order of the Magiſtrates was ſent to the Hoſpital, having already ſome ill Symptoms, as Bubo's, about her; which being yet unknown, one would not have preſently taken for Peſtilential, but rather Venereal: But they ſoon ſhew'd their Epidemick Kind, by ſeizing upon other Children that were kept in the ſame Rooms.

In the ſame Month I had under cure a *Poliſh* Lady that was come hither from *Jariſlaw*, and labour'd under a Chachexy and Tympany. In a Fortnights time ſhe recover'd ſo well, that ſoon after ſhe went to Church: But it was not long before ſhe fell ill again, being taken with a ſlow Fever and a ſudden Proſtration of Strength, and died within 8 Days. When they came to waſh her dead Body, there was found on the lower Belly a brownish red Swelling about the bigneſs of a ſmall Hen Egg, which I afterwards judged to be a *Furunculus*: So much I could then gueſs, that it was not a common Swelling; for it was ſurrounded with a Lead-colour'd Circle, from which proceeded ſeveral blue Rays in the adjacent Parts.

However, this was not a ſufficient Ground to demonſtrate or to give publick Notice, that the Contagion was already amongſt us; ſeeing our Magiſtrates had at this time publiſh'd an Edict, That no body, by reaſon of any extraordinary Sickneſs, ſhould immediately ſpread a falſe Account thereof, to the Prejudice of this Place; which ſome might do either thro' Malice or Inadvertency, and report it to Foreign Parts; by which the Inhabitants might be terrify'd, and our Trade and Commerce,

merce, which is the Soul of this and other trading Towns, obſtructed. But in the mean time Care was taken to prevent, as much as poſſible, the farther Progreſs of this Diſtemper: The Streets, the Waters, and Houſes were order'd to be cleanſed from all manner of Filth and Naſtineſs.

On Sunday the 16th, The Governors of the Hoſpital deſired that I would be Phyſician in Ordinary to their Hoſpital, or at leaſt that I would give my Help and Aſſiſtance at preſent, by reaſon of the many ſick that were in the Hoſpital, and which increaſed daily. Next day I went to the Hoſpital, and inquiring for the Surgeon in Ordinary, I was informed that he died the Day before; but they knew not of what Diſeaſe. In viewing the Patients, I found ten in a Room together, of various Ages, ſome of which had Bubo's, others Carbuncles, others Gangrenous Ulcers, which one cannot always judge to be Peſtilential. In another Room there were above twenty Children, from ſix to thirteen Years, all which, except four or five, had either Peſtilential Bubo's in the Groin, Armpits, and about the Neck, or elſe Carbuncles on the Arms, Thighs, Legs, and other parts of the Body. After I had perfectly informed my ſelf of the ſtate of the Hoſpital, I took my leave, having firſt recommended to the Surgeon, that then attended, ſuch neceſſary Medicines as I judged proper in theſe Caſes to be given inwardly; the reſt I left to his Care and Diligence; but I could not forbear telling him my Opinion, That theſe were Symptoms, if not of a Plague already inſinuated, yet at leaſt of ſomething but little inferior to it, and certain Forerunners of that deſtructive Diſtemper. Upon this I called to mind, what I had obſerved in my Travels at *Venice*, in thoſe that came from the *Levant*, and had performed their Quarentine, who had alſo had the Plague, of which there were ſtill ſome Remains upon them. But the Surgeon did not then think this

this to be any Thing ſo dangerous; but was ſoon after convinced of his Miſtake, the Diſtemper ſeizing him and his Family, of which himſelf, his Wife, and all his Children died.

After I had made this Inquiry into the State of the Hoſpital, conſidering the Fatigue the diſcharge of this Office would oblige me to, and that it was impoſſible for me to undertake the Care of other Patients, ſo as to do for both what Neceſſity might require, I excuſed my ſelf to the Governors, and declined the Charge. From this time the Malady and Number of Patients daily increaſed, and moſtly in the outer Parts and Suburbs of the Town, which proved very troubleſome to the Phyſicians.

June 26. My Daughter of about ſix Years and a half old, began to complain of an unuſual Head-ach. I preſently gave her ſome Bezoardick Drops, with Volatile Cephalick Spirits. In four Hours after ſhe was much alter'd, her Eyes ſtared, her Extream Parts were diſtended, and violent Convulſions enſued, tho' they did not continue long; but afterwards ſhe lay as if ſhe was Paralytick, and could not be made ſenſible. Whatſoever Medicines we made uſe of, avail'd nothing; ſo that ſhe died the third Day following. The ſame Day alſo my Wife fell dangerouſly ill; but in a few Days got paſt the worſt; and tho' ſhe was confined to her Bed a long time, yet with the Aſſiſtance of other Phyſicians, ſhe at laſt happily recover'd.

This for ſome time brought an ill Repute upon my Houſe, as if it was infected with the Plague, and was very detrimental to my Practice, every Body being afraid to make uſe of me; but the Malady increaſing, I daily regained my Practice, tho' all the Efforts I could make I found were too weak to reſiſt the violent Progreſs of ſuch a Diſtemper: For one might daily perceive how the

Poiſon got ſtrength, and conſequently that the Diſeaſe was harder to remedy.

Thus the Diſtemper grew predominant, and by the end of *Auguſt* was ſpread almoſt over the whole Town. All poſſible Care was taken to ſupply the Poor (which in this Place are very numerous) with Neceſſaries both of Food and Phyſick; to have the Streets and Dwelling-Houſes kept clean and neat; the Communication of the Sick with the Sound as much as poſſible prevented; and the Dead buried timely, and in the Place appointed for them; and all this by the Authority and Direction of certain Perſons the Magiſtrates had appointed thereto, called for that Reaſon, *Proviſors of Health.*

Beſides, the *Peſthouſes* were open'd, and well provided with all manner of Neceſſaries, as alſo with Overſeers and Servants; to the defraying the Charges of which conſiderable Sums of Money were collected. Many Perſons of Condition hired particular Houſes for their Servants; and others made up convenient Appartments in their Gardens, and procured Servants and Nurſes to attend them, that in caſe of Infection they might there be taken Care of. The Peſt-Waggons and Chairs went from early in the Morning till late at Night; the former to carry away the Dead to be buried, the other to convey the Sick to the Hoſpitals. Beſides the ordinary Churchyards, there were others made without the Walls of the Town. In ſhort, every thing was ordered with wonderful Convenience, and ſo well and carefully look'd after, that without it the Infection would have deſtroyed a much larger Number of People. And tho' this is a very Populous Town, yet during the Contagion, we did not loſe near ſo many as was maliciouſly reported, *viz.* Forty thouſand Perſons; the Falſity of which Account appears plainly from the Bills of Mortality, together with the Number of Chriſtnings and Marriages that were in this Year, as they were carefully taken and publiſhed

publiſhed by Order of our Magiſtrates, as you will ſee in the following Diſcourſe.

We were now arrived at the Time when the Plague raged with greateſt Violence, which was in the Months of *Auguſt* and *September*, in which many Eminent Men, to the great detriment of the Publick, loſt their Lives. But, Thanks to God, of our chief Magiſtrates we loſt but two, and as many of our Judges: Of our Divines there died about a third Part: Of the Phyſicians and Apothecaries none at all: Of the Surgeons in Ordinary only two; but of their Aſſiſtants or Subordinates, eſpecially ſuch as belonged to *Peſt-houſes*, a vaſt Number. The principal Citizens ſuffer'd very little, but the Garriſon a great deal, thongh the Officers eſcap'd pretty well; but the Handycraft and common Tradeſmen, as well Maſters as Journey-men, Apprentices, Porters and Labourers were very much diminiſhed, and died in the Year 1709. to the Number of 24533. in which are likewiſe included all ſuch as were buried without the Town, and ſome of another Juriſdiction, of which we have not been able to get a true und exact Account: But as much as we have been able to collect, has lately been publiſhed by Dr. *Samuel Shelwig*.

There were two Things remarkable, which I muſt not omit to take Notice of. The firſt is, what Dr. *Shelwig* obſerved, That the Plague decreaſed in the ſame proportion as it had increaſed. For in *June* the Number of the Dead was 319; in *July* it roſe to 1313; in *Auguſt* to 6139; and in *September* to 8303: This was the higheſt degree of Mortality. After this the Numbers again decreaſed; ſo that in *October* they were 4932; in *November* 1961; in *December* 584; and ſo on gradually leſſening. The other Thing remarkable is, That but few of the People of Condition and Quality died of the Contagion in compariſon with thoſe of the common and ordinary Sort; which may be attributed (next to Divine Providence)

dence) to the different Number of Poor and Rich, and the great Care and Precaution the latter made uſe of to avoid it.

Yet it is to be obſerved, that we enjoy'd beyond others of our Neighbours, a free and uninterrupted Service of the Church, during the whole time of the Contagion: Our Gates were never ſhut, but free Paſſage in and out allowed to all: We had plenty of Proviſions, and all manner of Neceſſaries for the Subſiſtance of Man and Beaſts, by a Communication with all adjacent Places and Countries; nor was our Commerce and Traffick wholly interrupted, but there was a moderate Trade all the while, which was very beneficial to Tradeſmen and Labourers towards their neceſſary Support. Though the Poſts did not go, yet our Communication was not wholly cut off; and though our Exchange and Markets were leſs frequented, yet our Churches were in proportion the fuller.

Having thus obſerved the Regulation uſed in the Courſe of this Diſeaſe, it will be neceſſary to ſay ſomething more of its Progreſs, though it did not always keep exact ſucceeding Periods.

I obſerved before, that in *March* this Year, the firſt unuſual Mortality happened at the *Raumbaum* in the old Town: From whence it ſpread immediately into the Hoſpital, where I ſaw the firſt Symptoms of the Plague. Here it lay lurking for ſome time, ſo that we could not perceive it made any further Progreſs. But towards *July* it began to ſhow it ſelf more openly, paſſing from this Hoſpital (which is ſituated North-Eaſt) towards the Weſt, and at firſt ſeized the Suburbs, which lye beyond the Fortifications, and run out in length above a Quarter of a *German* Mile, and are called *Schidlitz*, beſides other Parts that lye Sideways, and have different Names. From the Suburbs it went Eaſt and Weſt towards the Town, and ſeiz'd thoſe People chiefly who

who lived near the Fore and Hind *New-Garden*. It continued this Course, only inclining a little more towards the South, and infecting partly the Places that lye betwixt the Fortifications in the South, and partly those that are in the same Line without the Walls, as *Schottland*, *Ohre*, *St. Altrecht*, besides some part of the Town within the Walls, lying towards the *Plaga*, and called the Suburbs also. It spread likewise very much South, East and North, to distant Places, till it came near the open Sea, and ravaged the Lands and Places belonging to the Town, as *Hochte*, *Werden*, and *Nahzung*.

As the Disease had in this manner surrounded the whole Town, and infected every Quarter of it; so we heard that our Neighbours on the Frontiers had likewise received the Infection. But it is to be admired, that in no District of the Town the Number that died was less observed than in that Part which we properly call the City.

Though in the Course of the Infection it spread it self, and run as it were in a Circuit, yet its Motion was not so transient in shifting from Place to Place, but that it continued fast to its first Hold, only with this difference that it did not so severely infest the Places it had at first possess'd as those that it enter'd later. This we could very well perceive and observe, when it was raging the fiercest in the *Pest-house*, *Hinterschihdlitz*, and other Places.

Thus far I thought fit, for the satisfaction of the Curious, to give an Account of the Attack this Distemper made upon *Dantzick*, and the Circumstances attending it, till the conclusion of the Year, in which I my self was a great Sufferer.

PART II.

PART II. *Containing Phyſical and Medicinal Obſervations upon the* Plague.

BEFORE this fatal Diſtemper reached this Town, many People were poſſeſs'd with an inward Fear, that it was impoſſible for them to eſcape it, ſince it had already ſeiz'd their Neighbours. In the mean time I made it my Buſineſs to obſerve narrowly every particular that happened, in order to find out, if poſſible, the Natural Source of this Malady, and by what Medicinal Means it might be reſiſted. Any one cannot want good Information who peruſes the Authors that have writ upon this Subject; but as to this particular Point, there is ſuch a Diſagreement among them, that one ſhall never be able to learn from them the true Natural Cauſe of the Plague; becauſe it often proceeds from different Cauſes, and oftentimes the ſame common Cauſe is attended with ſuch different Circumſtances, as render it dubious.

That the Plague is a Poiſon, or rather carries a Poiſon along with it, is acknowledged by all Phyſicians: But of what Kind and Nature it is, and whence it proceeds, but few can agree. It is well known, that it has a twofold Operation, in ſuch a manner, that the Blood of the Infected is ſometimes thereby coagulated, and ſometimes diſſolved, according as the Humours of Human Bodies are diſpoſed; and yet they are both alike pernicious. If it coagulates, the Juices ſtagnate, and the progreſſive Motion ceaſes: If it diſſolves, then the Natural Connexion and Coheſion of the Particles become colliquative and incoherent, and the Spirits gain a free Exit, and leave the Body motionleſs.

That

That the Air was infected, during the Contagion here, is certain: Not that I mean a general Infection, as if the Air was by a ſupernatural Power ſo tainted and corrupted, as to taint and infect all Things breathing; for by this Means no Soul could have eſcaped, and it would be too groſs a piece of Philoſophy to advance: But as it is a ſubtile, moveable, and every where expanded Body, it attracts and receives all *Effluvia* and Exhalations, as a Spunge does Water, and imparts them likewiſe (by means of its Motion) to other Bodies; ſo that, as a communicative Medium, by the Entrance of it into our Bodies, we recieve whatever it carries along with it. I ſhall therefore endeavour to explain how the Air comes to be of this or that Diſpoſition or Conſtitution; by what Means its pure and natural Temper is altered; and how far, and with what Particles it is impregnated; for according to that it muſt be more or leſs impure, and ſo affect accordingly.

It is generally obſerved, that the Plague commonly enſues after great Battles. The Reaſons alledged for it are, that the Exhalations proceeding from the vaſt Number of Dead Bodies corrupt the Air, by which Mankind are afterwards infected. How much more then muſt they be infected, when there is an actual Contagion among them, notwithſtanding that it ow'd its firſt Riſe to ſuch Corruptions, as by means of the Air are brought from Foreign Parts; an Inſtance of which we ſee in Goods and Merchandizes. I ſay, the Infection of the Air muſt be ſtill greater in proportion to the actual Increaſe of the Peſtilence, when ſo many thouſands of People die, and many continue to lye putrifying for many Days above Ground, and others are buried without a Coffin, and but a very little way under Gronnd. Beſides the Heat of the Weather (for theſe Caſualities generally happen in Summer) cauſes the Bodies to corſooner;

rupt ſooner: And alſo there is a great difference between thoſe that die in Battle, and thoſe that die of the Plague; the former being ſound Bodies; but the latter infectious, and a meer Maſs of Corruption before they died, and muſt conſequently infect the Air more than the former.

What I have ſaid concerning an infected Air, is confirmed by the Teſtimony of all who have writ of the Plague by Experience; and they have likewiſe obſerved the Circumſtances and Signs to be the ſame as they appeared to us. *Horatius Lumbiſanus* in his Treatiſe of the Plague, aſſerts, that there are only two Kinds of it, and that both of them proceed from the Air; for which he refers to the Authority and Conſent of the Ancient Phyſicians. *Matthæus Ramelovius* in his *Speculum Peſtis perpolitum*, *pag.* 9. likewiſe mentions impure, poiſonous Air, which eaſily receives Venom from one Man, and imparts it again to another: Not to mention others. But *Paul Sorbait* demonſtrates this with ſingular Inſtances in his Diſcourſe of the Plague at *Vienna*, *Anno* 1679. in which he ſays, "That a vaſt Number of People, "and I my ſelf, among the reſt, have ſometimes felt in "the Groins and under the Arm-pits violent Pains, but "without any Tumour, and theſe intermixt with Pal-"pitations of the Heart; all which went off again in "time. Theſe I think were certain Signs of an infected Air; only that it makes not ſo great an Impreſſion upon ſome as upon others. And in the ſame Diſcourſe (Queſt. 51.) he again repeats his Opinion in theſe "Words; "That ſince the Air is infected, it may ea-"ſily affect the forementioned parts of the Body, eſpe-"cially the Heart; the Plague being often called *Mor-"bus Inquinalis*. With him likewiſe agrees *Andreas à Keiht* in his *Loimographia*, which contains many Things very remarkable.

What

What *Sorbait* asserts, I found to be true by Experience: Otherwise I know not to what Cause to impute my having felt, during this Contagion, the very same Pains which he did, several times, one after another, insomuch that sometimes I was not able to stir. Besides, when I have come from Places where People lay as yet unburied, or from infected Houses, I have frequently found a palpitation at my Heart, a pain in my Head, and Anxiety, with a reaching to Vomit, but without bringing any thing up.

In the beginning of *October* I fell ill of a violent *Catarrh*, which obliged me to keep my Bed. On the third Day it turned to a Salivation, which continued for three Hours so violent, that my Gums and Mouth swell'd as if I had taken *Mercury*; but the next Day I recovered and was well again. I was never affected in like manner either before or since. From whence I conclude, that I received it from the Poison in the Air; only it had not Power enough over me, otherwise it might have suffocated me. I had once like to have died of the Venom of a Viper; for in the Year 1703. (*April* 27.) I was bit by one in the fore Finger of my left Hand; of which in a Moment after I grew out of order, and at last fell into Convulsions. Having immediately after the Bite suck'd my Finger, my Face swelled, and my Mouth almost closed up. Being in this Condition, few expected my Life; but notwithstanding, in three Hours after, the Convulsions began to cease, and I gradually recovered. But to return to my present Subject. That the Air was actually infected, appears from this, that many of our Inhabitants, though they took never so great Care to prevent being infected, kept continually at Home, used all manner of Preservatives both inward and outward, suffered none of the Infected to approach either them or their Servants, yet nevertheless they caught the Infection. Besides, others that conversed

with People that were healthy and well, and without the Town, in an open free Air, and well ſituated Places (but perhaps by chance looked out to ſee ſome Body or other carried by to be buried) took the Infection, fell ill and died. So that I cannot in the leaſt doubt, but that the Air is infected; and that by means of ſome Morbid *Effluvia*, wherewith it is impregnated, it does alſo infect and deſtroy Mankind: Concerning which you may read the learned Dr. *Laurentius Eichſtadius*, in his *Diſputat. Phyſiolog. de Peſte.* There were ſeveral other Indications of the Diſorder of the Air, as many unuſual Signs that were ſeen in it, the State of the Creatures that live moſtly in it, *&c.* which would be too prolix to mention here.

Authors generally make a Diſtinction betwixt the Signs of a future and of a preſent Plague. Concerning the former, the famous Hiſtorian *Caſper Hedio*, in his *Chronica*, has related ſeveral wonderful Accidents that happened in the Stars, the Air, the Earth, and the Waters, in *Germany*, *Italy*, *France*, *Poland*, *&c.* as certain Signs of an approaching Plague, which ſoon after did enſue.

I cannot diſprove the Conſequences drawn from theſe and ſuch like Relations, ſince the Event confirms the Truth of them: Yet they are but uncertain Signs, and as ſuch are eſteemed by *Pet. Sybillinus*, and others of the Learned. However, I think it not amiſs to relate ſome of the unuſual Signs that happened here before the Plague came among us. Of this kind was the extraordinary Number of Spiders, which were found in ſuch abundance the Year before, (*viz.* 1708.) towards the Eaſt, that a Country Gentlemen aſſured me, when one Day he happened to be looking after his Workmen, he was cover'd all over with them. The ſame is likewiſe obſerved as a forerunner of the Plague by the Learned Dr. *A. Q. Rivinus* in his *Tr. de Peſte.* The ſame ſort of Spiders I have alſo my ſelf obſerv'd near my Houſe. The Winter following

ing, which was the Winter before the Plague, we had such a Frost, as never happened within the Memory of Man. It began on the second Day of *Christmas*, and continued till *Easter*; during which time there fell such vast quantities of Snow, that we were twice obliged to be at the Expence of imploying a great number of Carts to carry it out of the Streets, otherwise it would have done great Damage. Notwithstanding, I cannot think these sufficient Indications of an approaching Plague; because this Distemper very often follows upon a mild as well as a hard Frost; many Examples of which may be produc'd from Mr. *Reinhold Carike*'s Account of the Plagues which happened at *Dantzick* in the Years 1352, 1427, *&c.*

But the Signs that are observed in the Air, at the time when the Plague rages, are more evident; and especially those that are observed in Mankind themselves, will easily evince the Infection of the Air. On *August* the 11th, at Twelve of the Clock, I first observed a stinking Mist, like a thick Cloud, but of short duration; but at Four a Clock it returned from the North West, so very thick, that it perfectly darkned the Air, and hinder'd the Sight. It was neither blue nor grey, as other common Mists; but of a blackish yellow, like the Vapours that rise from the Effervescence of Oil of Vitriol with Oil of Tartar. After it had reach'd the middle of the Town towards the South East, it inclin'd Westward, and there emitted a violent Stench; as many can witness. The second Sign of a Corruption (in the Air) as Dr. *de Sorbait* calls it, appear'd to us, if I mistake not, in the beginning of *October*. This was a blue fiery Globe, which came from the North West, about Eleven a Clock at Night, and shot towards the Town as swift as an Arrow out of a Bow, and seem'd to fall over against the Town towards the South. In its flight it gave a great Light all over the Town; which I my

ſelf and many more ſaw, and was alſo atteſted upon Examition before the Magiſtrates by the Soldiers that were upon Watch that Night. The third Sign of an infected Air was not, as may perhaps be thought, only the Fancy of People, but the careful Obſervation of the learned Dr. *Samuel Schelwig* in his Treatiſe beforementioned; *viz.* That in the Month of *July* the Crows, Daws, Sparrows and other Birds, which at other times are to be ſeen here in the Town and about the Gardens in vaſt Numbers, were all fled, and none of them to be ſeen till *November*. The ſame was obſerved of the Storks and Swallows likewiſe; and I can poſitively affirm, that I ſaw none of thoſe Birds all thoſe four Months.

I muſt confeſs theſe Things happening at this time, made me often inquiſitive about the Reaſons of them: Yet I ſhould hardly have been perſwaded that they had any Dependance upon the Plague, ſince they may, and ſometimes do happen without it, if there had not other more dangerous and certain Signs of a Plague appeared in Mankind itſelf. Theſe indeed were very many; ſome External, ſome Internal. The former are never without the latter; and the latter but ſeldom obſerved without the former; only that ſometimes the External Signs do not appear till the Patient is dead. Both have been often taken for Diagnoſticks, as alſo for Prognoſticks; Experience confirming, that upon ſuch and ſuch Signs and Symptoms nothing but Death could enſue.

But great Regard ought to be had, firſt to the Signs themſelves, and then to the Symptoms; for they may be Spurious, and without Malignancy, tho' by the Diagnoſticks you might take them for Peſtilential. And eſpecially the time muſt be diligently obſerved; for many Signs that in the Increaſe and at the Height of the Diſtemper appear'd dangerous, in the Beginning and Decreaſe of it were mild and without any danger. For the Diſtemper began and increaſed gradually, and leſſened in

like

like manner; but the middle was the worſt, and moſt violent. For at firſt the *Bubo's* were more common than the *Furuncles*, *Carbuncles* and *Vibices*: Afterwards again the *Petechiæ* were more common than theſe; though during the whole time of the Contagion, they were never wholly ſeperated, ſo as to appear ſometimes one without the other. At laſt the *Petechiæ* and *Carbuncles* went off; but the *Bubo's* continued laſt of all.

The *Bubo's*, which are to be reckon'd the firſt of the External Signs, lye very deep in the Skin, and are at the beginning hard, unmoveable and round; afterwards they grow longer, and may be moved. Outwardly they do not look red, till they are drawn and brought to maturity. They are generally found in the Groins, Armpits, and about the Neck. Moſt of them come with a very violent, cutting and pricking Pain, accompanied with heavy Symptoms, (which I call Internal Signs) as Pain in the Head and Back, ſhivering Colds interchang'd with Heat, Anxieties, Faintneſs, and frequently alſo bilious Vomitings. According as there is more or leſs Malignity, the Symptoms are proportionably more or leſs violent: Sometimes they are very mild, and the *Bubo* proceeds without any great Pain.

Furuncles differ from the common *Bubo's* in this, That they appear moſtly in the fleſhy Parts, to the Number of five, ſeven, or nine on one Body. They are ſometimes red, and ſwell to a greater Height than the *Bubo's*: Their Pain is very violent, and therefore diſturbs the Patient's Reſt. The other Symptoms are much the ſame as in *Bubo's*; and tho' they are not always alike, yet they are never without a Fever, and are attended with Pain in the Back and Belly.

Carbuncles and *Anthraces* are much more pernicious, and of various kinds: And I dare affirm, that if they had been rightly taken Notice of, one might have obſerved amongſt them many ſtrange Figures and *Species*. I ſhall only

only mention four Sorts of them. The *Firſt* ſhews itſelf ſomewhat eminent and riſing, of a dark brown, the uppermoſt Skin appearing ſomewhat dry, as if it was burnt, and has withal a Lead-coloured Circle. In the beginning it is frequently no bigger than a Pea, but if not prevented increaſes in a ſhort time to the bigneſs of a Crown-piece. Inwardly it is moiſter than the following *Species*, and may be eaſier ſeparated. It's Seat is generally in the fleſhy Parts, and is to be found on the Shoulders, Sides, Hips, Neck, and alſo on the Arms and Legs.

But the *ſecond Sort* lies ſomewhat deeper, and ſeems a little more depreſſed. The *Eſcar* is in the middle of it, which is wholly Dark and Aſh-coloured, full of ſmall Cuts, as it were burſt by too great a Dryneſs, and has a ſtrong Lead-coloured Circle, behind which the ſound Fleſh looks red and ſhining. It very much eats the Fleſh about it, and fixes its Roots very deep. In its Seperation it feels dryer than the former, and may be taken out by pieces. It is fixed generally where the Fleſh is thickeſt, as on the Buttocks, the Calf of the Legs, and under the ſhort Ri's towards the Back. Theſe two *Species* burn violently ſtrong beyond the reſt, inſomuch that a red-hot Iron can hardly occaſion more Pain; and indeed the Patients (not to mention other Symptoms that accompany them) are almoſt killed by the meer Pain of them.

The *third Sort* is not very big, nor of a very large Circumference. At firſt it appears like a Blood ſwelling, not ſo black as the former, the Skin being alſo ſomewhat wrinkled. In its Increaſe ſmall Bliſters ariſe on the middle of it, and form an *Eſcar* in ſmall Cluſters, which, as an Ingenious Phyſician obſerved, were ſmall Carbuncles. They are commonly ſituated in Membranous and Tendinous Parts, as towards the Knees, behind the Ears, upon the Toes, *&c.*

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The *fourth Species* is the moſt Curious, but very deceitful, as *Purman* in his Treatiſe of the Plague has well obſerved. *Joh. Bapt. Sitonius in Miſcel. Med. Curioſ. Tr. I.* calls them *Papulæ lividæ, ulceroſæ, & pallidæ.* It appears with a high Bliſter, which is yellowiſh, as if it contain'd Corruption. About it firſt is a red, afterwards an Aſh or Lead-coloured Circle: The Bliſter ſoon falls, and within you ſee the Carbuncle hardly of the bigneſs of a Pepper Corn, which continually eats deeper and wider. Theſe are ſeated upon the Cartilaginous Parts: I have found them near the Pit of the Stomach upon the *Cartilago enſiformis*, and upon the ſhort Ribs.

All theſe four *Species* of *Carbuncles* take deep Root, and in the beginning burn very violently, but the two former more than the latter. The Symptoms attending them are violent, though not always ſenſible, but ſo much the more dangerous; as generally Reſtleſsneſs, *Delirium's*, ſudden Loſs of Strength, Pain in the Head and Back, Anxieties, inward burning Heat, Thirſt, *&c.* The firſt Onſet is frequently attended with a Shivering, bilious Vomiting, *&c.* According to the greater or leſs Power of the latent *Miaſma*, the Symptoms are always more or leſs violent.

The *Petechiæ* or Malignant Spots, which are at all times, as is well known, very dangerous, did eſpecially in this Contagion rage violently. I have obſerved of them alſo four diſtinct *Species*. The *firſt* look like Fleabites, and therefore have been called by ſome Authors *Pulicares*. They break forth reddiſh, and ſoon changing their Colour, grow brown, and at laſt black. They are round, and ſpread all over the Body, excepting the Face, where they are not always found,

The *ſecond Species* appears in the Figure of Lentils, and therefore they are called *Lenticulares*, and are likewiſe at firſt ruddy, but in about Twenty four Hours,

Hours change Colour, and grow Dark and Aſh-colour'd: They ſpread, as the former, all over the Body.

The *third Sort* appears in large round Spots, of the ſame Colour as the former, only they are found but here and there upon the Body: Sometimes they are alſo intermixed with the Lentil kind.

The *Fourth Species* is not unlike the Meaſles, and ſpreads all over the Body. After two or three Days you find them ſhoot into little Bliſters riſing to a Head, but containing no Matter. They dry away the fifth Day, at which time the Patients Death is not far off. After they are dryed away, the Skin is rough, and much like that of a ſmoaked Gooſe, only not quite of the ſame Colour.

To theſe we might add a fifth *Species*, mentioned by Dr. *A. Q. Rivinus* in his Treatiſe *de Peſte* (pag. 51.) Theſe appear not till after Death, either in Points, or Spots. But ſeeing they differ in nothing from the aforementioned, except that they firſt appear after Death, they can ſcarce be made another Species. They ſhow themſelves moſtly on the Back and Breaſt, and give plain Indication that there was a Malignity which killed the Patient.

Many ſad and pernicious Symptoms appear alſo at the breaking forth of theſe ſeveral *Petechiæ*; as Pain in the Head and Loins, Vomiting, *Diarrhœa*'s, Palpitations of the Heart, great Anxieties, Faintings, ſhivering in all Parts of the Body, which are frequently ſucceeded by Heat or Sweat, Deliria, Epileptick Fits, Lethargy, a diſmal Hippocratick Face, ſtaring Eyes, Bleeding at the Noſe, inordinate Menſtrual Fluxes. In ſhort the Symptoms are ſo many and various, that it is impoſſible to obſerve them all.

Next are the Plague-Stripes or Rays, called, by *Joh. Bapt. Sitonius*, *Vibices*, and by others, *Molopes*. They are not ſeen before the latter End, for Death itſelf attends them: And this uſed to happen very unexpectedly, tho'

tho' the Symptoms were tolerable, and at the ſame time Hopes of Recovery: Yet like Lightning they ſhot upwards from the Breaſt to the Face, all in Strokes of various Colours, blue, green, brown, and yellow; firſt covering the Face as high as the Noſe, and from thence ſpreading farther to the Forehead. This ſo disfigured the Patient, that he was frightful to look upon: His Eyes grew ſtiff, his Tongue trembled, his Speech gradually ceaſed, and inwardly there was great Anxiety and Confuſion; from all which the ſtruggle betwixt Life and Death might well be obſerved.

I ſhall now laſt of all mention the *Fire-Bladders*, which I have only obſerved in two Patients, and that in the beginning of the Contagion, both which recovered; and therefore I do not think them ſo very dangerous, as Mr. *Purman* deſcribes them to be, unleſs we miſtake the Species and Property of them. To me they appeared as broad as a Shilling, of an irregular Height and Figure, with a clear wrinkled Skin, as if ſhriveled by Fire: They at laſt emitted a ſmall Moiſture, and vaniſh'd in a few Days. I have obſerved them only upon the Belly, Thighs, and Legs. They came forth with a ſmall Cold and ſucceeding Heat, and with Pains in the Head and Back, and Wearineſs.

Theſe were the External Signs, as they appeared to us, and as far as I was capable of deſcribing them. As for the Symptoms, ſeeing they appeared very various, tho' the *Exanthemata* were one and the ſame, it is impoſſible to deſcribe them ſo nicely as might be wiſhed; yet by reaſon of the Prognoſticks I have divided them into ſeveral Claſſes for my own Practiſe, that I might judge the better of the Event. In the firſt Claſs I placed all thoſe that were in themſelves not dangerous: In the ſecond thoſe that were doubtfull, and had various Events, both good and bad: In the third, thoſe that were wholly dangerous.

The Symptoms in themſelves not dangerous, were Pain in the Head, a ſmall Shivering or Cold, a tollerable Heat, nauſeating of Victuals, Thirſt, the Belly diſtended with *Flatus*'s, Anxities, Dejectedneſs, Pains and Stitches behind the Ears, in the Temples, and on the Shoulders, Heavineſs in all the Limbs.

The dubious Symptoms were Palpitations of the Heart, ſhortneſs of Breath, Anxieties of Heart and Faintneſs, Looſneſs, Vomiting, Dryneſs of the Throat, Reſtleſsneſs, a continnal Fever, Delirium, *&c.*

The Symptoms altogether dangerous, were Sleepineſs and Lethargy, Palſie, Epileptick Fits, Cramp, Bleeding at Noſe, irregular Menſtrual Fluxes, Miſcarriages in Childbearing Women, ſudden loſs of Strength, Rigour and Shivering through all the Limbs, burning Heat, ſtaring and watering Eyes, continual Inquietude, with great Anxieties, external Coldneſs of the Limbs and inward Heat, with Dryneſs of the Tongue and the Throat.

But it is to be Noted, that no one of theſe Symptoms ſingly by itſelf can abſolutely determine either good or bad: Yet I can truly affirm, that if any one of thoſe of the laſt Claſſe, as for Inſtance, the Lethargy, or an unuſual Shivering through all the Limbs, happened to any at the firſt Onſet, I ſeldom failed in my Prognoſtication. I ſhall therefore add to this Part ſome further Obſervations, which may ſerve inſtead of Aphoriſms in Practice, and have been uſeful to me in Prognoſticating the Event of this Diſtemper.

But firſt I ſhall mention a remarkable Thing, that was very common at the time when the Plague raged, and is not to be reckoned among thoſe Signs that happen by Accident.

Several People, not excepting the Stouteſt, were frequently ſtruck with a Fear, Horrour and Anxiety, inſomuch, that they perceived a violent Trembling and beating,

beating of the Heart, and Pain in the Back. Many of them would presently fall into Despair, and thought no other but that the Plague had already seized them. This was especially more frequently observed in the Months of *July*, *August*, and *September*. It seemed strange to me at first, but I found that it had also its Natural Causes, which were stirred up by some Secret Passions of the Mind, and therefore might also be remedied by Natural Means. Chearful and incouraging Discourse, to rouse and comfort the Spirits, went a great way in the Cure; but there were a great many upon whom this availed nothing, but remained inconsolable and melancholly, so far, that at last they died. At length this Fear got the upper hand so much, that even the Physicians themselves (though generally reckon'd Men of Understading and Experience) left the Town and fled. The neareſt Relations would not venture so much as to visit those that were so possessed, or give them any Assistance: And we have Instances enough of Parents that in this Case would not visit their own Children, though they lived in the same House with them.

The particular Accidents, as far as I could observe in my Practice, and from thence Prognosticate, are as follows.

The *Bubo's* were in the Beginning of the Contagion much more dangerous than afterwards; and those which happened on the left Side were more pernicious than those on the right: Which very well agrees with what Dr. *Rivinus* (p. 54.) has observed.

Bubo's did not always need to be drawn and extracted, nor would they sometimes be drawn or forced outward, but were divided by good Emollient Medicines.

It was better not to lay Plaisters presently upon the *Bubo*'s, but to stay till the fifth Day, and then it might be done with Safety.

Carbuncles ſeated on the Nervous Parts proved more dangerous than on the fleſhy Parts.

Where *Carbuncles* came not quickly to Seperation, the Caſe was dangerous.

Carbuncles without the Patient's being particularly ſenſible of them, without Heat and great Laſſitude, were followed by Death the fifth Day.

Carbuncles generally after the fifth or ninth Day well permitted a Cure, but required great Care, eſpecially that the Patient might not catch Cold.

If a *Bubo* happened near a *Carbuncle*, it was a good Sign, and leſs dangerous than if the *Carbuncle* was alone.

Cabuncles beſide *Petechiæ*, or Spots, were moſtly mortal.

The *Petechiæ*, or Spots like Flea-bites, were mildeſt and beſt of all; nay, ſome Patients went abroad with them, but ſeldom with any Benefit to themſelves.

Petechiæ, that did not break forth before the fifth Day, prognoſticated Death.

Such *Petechiæ*, as are called *lenticulares* and *purpuratæ*, were at this time all Mortal.

Occult *Petechiæ* brought nothing but Death.

Vibices, or Plague-Stripes, were infallible Signs of Death.

As ſoon as a Shivering, with Pain in the Head and Back, bilious Vomiting, and great Laſſitde happened, then was the Patient taken with the Plague.

If the Shivering was violently ſtrong over the whole Body, and a trembling in all the Limbs, the Pulſe withal weak, then on the third Day infallibly Death enſued.

Hemorrhagies, or Bleeding at Noſe, or irregular Menſtrual Fluxes, whether they happened the 1ſt, 2d, or 5th Day, or even the 7th or 9th, were always dangerous and mortal.

All,

All Evacuations generally, if they came with ſudden Loſs of Strength, and an unequal trembling Pulſe, were not Critical, but Colliquative, and occaſioned Death.

Ordinary Menſtrual Fluxes, if there was no *Bubo* or Furuncle, were not dangerous.

Generally all Beginnings of this Diſtemper, which affected the Senſes or nervous Parts, were dangerous, and ſignified Death.

Great Inclination to Sleep, or Lethargy at the firſt Invaſion, was a dangerous Sign; and tho' the Patient bore up under it the ſecond or third Day, yet he rarely eſcaped Death

All Relapſes were dangerous: If they happened ſoon after the 5th Day, the 7th was the laſt; if after the 9th, then the Patient fell into an Hectick Fever, and died ſome Weeks after.

If the Patient the third Day after the Invaſion of the Diſtemper, appeared ſtrong, and talked much, yet had an inward Fearfulneſs, then he died the third Day following.

If the Patient was taken with a Shivering, not ſucceeded by Heat, but great Weakneſs, and without any viſible Sweat, had a dry Throat, a dry Breaſt, and a tickling Cough, the Caſe was very dangerous.

It is to be obſerved, that in this Diſtemper no Critical Signs did appear; yet many Accidents had their certain Days, in which they determined.

All which Obſervations I could confirm by many undeniable Inſtances, were it neceſſary.

Before I conclude this Part I ſhall take notice of the Signs of the Urine, which many Learned Men give little Credit to: Neither do I think that they are infallible as to the Diagnoſticks and Prognoſticks of the Diſtemper; but being compared with the reſt they give great Light to the Phyſician, ſo that he may be able to form a more certain Judgment of the State and Event of the Diſeaſe.

Diſeaſe. For Inſtance, a clear and pale Urine, which we otherwiſe call raw and unconcocted, if it does not ſoon change and give a Sediment, is dangerous. A bloody and putrid Urine, let it look otherwiſe as it will, if it had on the Surface round about the Glaſs a pale red Circle, was at this time generally a Sign of Malignancy; nay, tho' the Urine was not ſtirred, and only this Circle was ſeen, it never ſignified any good, but was at leaſt a Sign of great Weakneſs. Lixivious Urine, without Sediment, and half concocted, and alſo in ſmall quantity, ſhewed a Defect in the Strength, and a lamentable Event.

PART III. *Containing Indications for Practice.*

WE were very careful to enquire after and procure whatever might tend to the Preſervation and Cure of the People. We recommended to them a good Diet, that the ſuperfluous and luxurious Abuſe of Victuals might not add Fuel to the Plague: But it was difficult to bring them to a regular Diet; for the common People wanted neceſſary Means to obſerve it, and rather choſe to ſpend what little Money they could get in ſtrong Liquors, to divert their Cares, and make themſelves inſenſible of their Miſery: And the Rich would not be confined to live by Rule, and ſo long as they did did not live debauched, thought nothing would hurt them.

Common Brandy (the *Panacea* of the Vulgar) was adviſed againſt and forbidden; and in its ſtead the Moderate uſe of *French* Brandy was allowed, and not without great Benefit; for thereby the Spirits were cheriſhed, and Fear and Anxiety baniſhed; all violent Paſſions of the Mind proving deſtructive to Health.

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Pot-Herbs, Garden-Fruits, and the like, which are generally flatulent, as alſo very Salt and high ſeaſon'd Meats, were not allowed; yet the People had no great Regard to it, but uſed them as they were wont, excepting ſome few, who were more careful than the reſt, and abſtain'd from ſuch Diet and avoided Company alſo: And there were many that choſe for the ſake of the Air to live rather in the Country than in the Town.

The Medicines in Pharmacy, which were made uſe of, were many; beſides thoſe that were publiſhed by Order of the Magiſtrates, and were written by the Phyſicians in Ordinary for the Preſervation of the People, in which they recommended their Specifick Preſcriptions. As to what concerns the Preparations, among which I reckon alſo ſuch as are Univerſal, as Purges and Vomits, I ſhall treat of them hereafter.

Of Simple Internal Medicines, which were in greateſt Eſteem, were *Radix Angelicæ*, *Calamus Aromaticus*, *Myrrha rubra*, *Sulphur*, *Nitrum*, *Ruta*, and the like. Of Compounds, the chief were *Machandel-Chalk*, *Theriaca*, *Mithridate*, various Preparations of Peſtilential Vinegars, Morſels, Troches, all manner of prepared Powders, alſo Gun-powder, *&c.* Some were pleaſed to make uſe of the *Medicina Stercoraria*, and thoſe very diligently drank their own Urine; how it pleaſed them, and what Benefit they found by it, they know beſt. Among other Preſervatives, the following ſent from *Thorn*, being in great Eſteem, I ſhall here give the Preſcription of it. ℞ *Aloes Hepat.* ℥vj. *Terræ ſigillat.* ℥ſ. *Theriac. Venet.* ℥vj. *Rhabarb. opt.* ℥ij. *Croci orient.* ℥iſs. *Zedoar.* ℥ij. *Myrrh. rubr.* ℥iij. *Agarici* ℥j. *Gentian. Dictamn. Rad. Tormentill. Camphor. Caſtor. Rad. Angelic. a.* ℥iſs. *Miſce.* Stamp theſe Species ſmall, and pour upon them a Pint and half of good *French* Brandy; then ſet it in a warm place in a well cloſed Bottle, and extract the Tincture; of which Tincture take twelve Drops as a Preſervative: But thoſe that

that are already ſeiz'd with the Plague or any Malignant Fever, muſt take a Spoonful of it, and ſweat upon it.

What the Benefit of this *Arcanum* may be, any judicious Phyſician may judge for himſelf. For my part, I can neither commend the Compoſition nor the Operation of it, not having found that in the Diſeaſe it performed any thing extraordinary; nor was it ſo beneficial as much Simpler Medicines.

Thoſe who made uſe of their own Phyſicians, and conformed themſelves to their Preſcriptions, fared without doubt much the better for it; as having their Bodies ſeaſonably prepared with *Alexipharmacks*, *Bezoardicks*, *Antiſcorbuticks*, *Diaphoreticks*, *Diureticks*, gentle *Laxatives*, &c.

My Preſervative was an Eſſence, which was prepared of the Species of the Eſſence of *Woods*, *Safron*, *Aloes*, and *red Myrrh*, extracted with Spirit of Wine, and adding to it the *Mixtura Simplex:* Which I found very Beneficial, not only towards Preſervation, but likewiſe in the Cure, as I ſhall have farther occaſion to ſhew. Dr. *Godfrey Stuve*, an Ingenious Phyſician of this Town, made uſe of this Medicine with a great deal of Benefit. Dr. *Achatius Muller*, at the very time when the Plague was at the Height, had great Succeſs with his *Acetum Antimonij ex Minera*, which without doubt was mixed with Bezoardicks. Beſides my *Eſſentia præſervativa*, I gave ſometimes a Bezoardick Powder at Night, conſiſting of the *Bezoardicum Senn. Bezoardicum compoſitum Wagneri*, or elſe this Bezoar mixt with *Specificum cephalicum Michaelis.* And if there was the leaſt appearance of the Diſtemper, I ordered my *Sulphur minerale confortans*, mixed with a Bezoardick or Digeſtive.

Among the various Compoſitions of Bezoardick Powders, the following was none of the leaſt; of which I ordered very frequently to be taken as much as would

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lye upon the Point of a Knife, especially if my Patients had a Terror upon them, or by reason of Melancholy found any Alteration about them. To others I ordered it as a Preservative, to be taken in a Morning mixed with Beer. ℞. *Rad. Tormentill. Scorzoneræ, Petasitid. Symphit. Aristol. rot. Lign. Guaiac. Colubrin. a.* ʒij. *Rad. Curcum. Zedoar. a.* ʒs. *Myrrh. rubr.* ʒj. *Corall. alb. Concb. mar. a.* ʒiſs. *Succin. flav. Terr. sigillat. rubr. & alb. Carnis Viper. Oculor. Canc. Bol. Armen. Corn. Cerv. ust. a.* ℈ſs. *Antim. diaphor.* ʒvi. *Nitr. Anodin. min.* ʒij. *M. Dosis* ℈j. *ad* ʒj.

Those who were obliged to be frequently or constantly with their Patients, made use of a Vinegar prepared for that purpose (of which there are many Compositions) which they took inwardly, and which they likewise smelled to. Others made use of *Rotulæ sublinguales*, of which also there are many Preparations. I preferr'd to them the *Placentulæ senectutis*, which Dr. *Sylvius Bocco* in his curious Observations has described (pag. 402.) These, when I visited my Patients, I generally held in my Mouth, having brought with me long time ago a good quantity of them from *Italy*. To take away the ill Scent, which was very frequent in the Patients Chambers, we smoak'd the Rooms with Juniper, Vinegar, Powders, Candles, and especially with Gunpowder: But this last must be carefully made use of. I generally had red Myrrh and Salt-Petre boiled in Vinegar, and ordered it to be poured upon a hot Tyle, to smoak the Room with: And this was done with very little Charge and great Benefit.

Evacuations were likewise by some reckoned among the Preservatives. But as that common Proverb, *Vis vi est repellenda*, is not always allowable, but often hurtful and dangerous in the Practice of Physick; so likewise these violent Means occasioned in the time of the Plague here a great deal of Harm.

A gentle Laxative taken once in a Fortnight, or three or four Weeks, according to the Diſpoſition of the Body, could not be amiſs; but it muſt be done with great Care, and keeping within Doors. I generally for that purpoſe made uſe of the *Eſſentia Laxativa*, which is now conſtantly prepared and ſold by the Apothecaries, but was firſt found out by my Father, who practiſed in this Town 36 Years, and at firſt kept it as a Secret, but afterwards communicated it to others. It conſiſts of the *Extract. Pulpæ Colocynthidis cum Spiritu vini parat. part.* 2, and the *Solutio Reſinæ jalappæ & ſcammonij āā pariter cum Spiritu vini rectific. fact, part.* 1. Theſe muſt ſtand to digeſt *in Balneo vaporis* for ſome Days. Other Laxatives have been likewiſe ſucceſsfully made uſe of, if but ordered at a right time, and the Patient took care of himſelf.

But much more Conſideration and Regard ought to be had in reſpect to Vomiting and Bleeding. If we have Regard to the Indications, we can not reſolve upon either of theſe without Danger. Bleeding is indeed generally allowed, if the Patient is Plethorick, and there is Blood enough; which may be eaſily by a different and foreign Matter brought to an Ebullition, and ſo is rarified, and conſequently requires a larger ſpace; and then there is an Indication that it wants Vent. But here during the Contagion, we very ſeldom perceived any ſuch Commotion in the Blood, but rather obſerved a Concentration of the Spirits, and a Defect of the Natural Heat; to prevent which we were forced to conſider more the Preſervation than the Diminution of the Maſs of Blood. Beſides, theſe can be no Indications how to preſerve Health, conſidering what I have obſerved as a mortal Sign in this Diſtemper; to wit, *Hæmorrhages*. If the *Hæmorrhages* had happened critically, and not ſymptomatically, which preſently indicated a Colliquation, and commonly threatned Death,

then

then we might have judged from thence, that Bleeding might contribute ſomewhat towards Preſervation.

I have been obliged to accept ſuch Signs as Nature offered, who of herſelf ſufficiently ſhews what is moſt beneficial, and alſo what moſt hurtful; becauſe ſucceeding Experience confirms, that the Indications, according to the External Signs, have been contrary to one another, and therefore cou'd not inſtruct us either how to preſerve or cure.

Sometimes Bleeding in the Plague has been reckoned a thing indifferent, which neither cou'd do Harm nor Good: But then the Indications were very obſcure, or wholly fallacious; yet I think it were better omitted than ordered. Sometimes one cannot know, whether the Patient has a Diſpoſition to receive the Venom or not; if he has, Bleeding is abſolutely dangerous; if not, it ſignifies nothing. Nor is it any conſequence, that all thoſe that receive the Peſtilential Venom, muſt be overpowered and killed by it.

The Poiſon no doubt continues its Strength to operate; but it finds ſomething that reſiſts its Operation, according to the Diſpoſition and Nature of the Body; which Reſiſtance Phyſicians place in the natural Heat, and a free Operation of the Spirits, which by Bleeding cannot well be preſerved, tho' they may not always be thereby diſturbed.

Notwithſtanding, the Queſtion is not, whether Bleeding be generally pernicious, but whether it can be allowed to be a Preſervative in Time of a Contagion; becauſe, as I have ſaid before, it is abſolutely dangerous and pernicious to ſuch as are infected, or diſpoſed to Infection.

As for Vomiting, it is not only of leſs uſe than Bleeding, but much more dangerous. I only ſpeak here of Vomits, when the Contagion is at the height. For it is obſerved, that the contagious Venom is not to be

ſearched for in the Stomach; becauſe it finds other ways, thro' which it may inſinuate itſelf into the Body. And tho' ſome Perſons ſhould receive ſome of this Venom with their Aliment into their Stomach; yet by reaſon of its Subtilty, it does not long ſtay there, but preſently ſeizes and attacks ſome more noble Part: For it is well known, that the effect of the Venom is preſently to be obſerved in the Blood, which it diſturbs and alters either in the Craſis or Motion, and ſo diſorders all the Functions of the whole Body: Whence it is, that the Onſet may not ſo eaſily be obſerved, but its Progreſs may. But if Vomiting is only deſigned to cleanſe the firſt Paſſages, then you muſt know, that the Diſeaſe ſeldom or never has its Riſe in the inferior Parts of the *Abdomen*, but commonly affects firſt the nervous Parts, by which means the inferiour Parts are drawn into Conſent, and cauſes many ill Symptoms and convulſive Motions; whereby indeed the firſt Paſſages are ſufficiently cleanſed, but it is to the great Prejudice and Ruin of the Patient. From whence it may be concluded, that Evacuations without great Neceſſity are abſolutely uſeleſs.

Secondly, we muſt take heed of ſuch Preſervatives, as produce Indications, not for the better, but for the worſe. We know that the Commotions cauſed by Vomiting, are not Natural, but brought about with Force and Violence: For which Reaſon *Galen* obſerved, even in his Time, *Vomitoria habentia locum, ubi morbus vectibus eſt expellendus.* Whereby in a great Meaſure the more noble Parts may be weakened; nay even the Spirits (in which conſiſts the Vital Eſſence) are diſſipated and diminiſhed, which yet are the greateſt Preſervation of the Body; and if theſe are diſturbed, as they certainly are by Vomiting, than the Body is rendred the more diſpoſed to receive the contagious Venom.

Thirdly,

Thirdly it is the Judgment of the moſt learned and experienced Practitioners, that Vomits in their Nature and Power differ little from ordinary Poiſon. How is it then poſſible that one Poiſon ſhould qualify the other? Laſtly, if they be conſidered as Auxiliary Remedies, then let them be adminiſtred with the greateſt Caution that can be, eſpecally at a Time when they choke and kill ſo many Symptomatically. If an Argument *a Poſteriori* may be allowed concluſive, then, as we ſaid before of Bleeding, we may alſo of Vomits, that they prognoſticate an unhappy Event to the Diſeaſe, and that they have not the leaſt Uſe imaginable in preſerving from Contagion. It happens ſometimes that a Man overcharges and diſtends himſelf with Victuals and Drink, and that Crudities lye in the Stomach; in which Caſe there are plain Indications for the Uſe of Vomiting, to prevent Crudities fouling the Blood; and at ſuch a time it is not dangerous.

Some may ſay, that intemperate Perſons may happen to be at the Time of a Plague as well as at other Times. This is undeniable; but it is certain that ſuch Crudities in the Body can neither increaſe nor promote the contagious *Miaſma*, ſeeing, as I have obſerved above, it immediately ſeizes the Nerves, and ſo occaſions Convulſions and Spaſms, which frequently ſcour and cleanſe the firſt Paſſages more than is neceſſary; inſomuch, that when nothing more can be expelled out of the Stomach, the Gall itſelf is brought up ſometimes with ſuch Violence, that the very *Viſcera* are ready to be torn to Pieces.

From whence it appears, that no Remedy can be more dangerous than Vomits. What is it then that can prevail upon a Phyſician to recommend them, and that without any Caution, eſpecially to ſuch as do not know how to take Care of themſelves? And every ordinary Perſon is ſo eaſily perſwaded to them, that if but the meaneſt

meaneſt Quack gives him any ſuch Thing, he makes no ſcruple of taking it, let it be what it will: As we have an inſtance in the famous *Italian* Cheat, *Francis Burrtin*, who with his *Tinctura auri* cheated many Thouſands of People, if not of their Health, yet of their Money, the laſt of which is indeed more excuſable.

Therefore great Care ought to be had in giving Vomits, and Conſideration that they be well adminiſtred, otherwiſe you will ſoon ſend the Patient out of the World.

Since we have ſpoken of Evacuations, which are otherwiſe called Univerſal Medicines, it will not be amiſs to reſolve a Queſtion, *viz.* Whether the *Ptyaliſmus*, or Spitting, can and ought to be conſidered as a Preſervative in the Plague? For *Jacobus Johannes Wenceſlaus Dotrzenski* has wonderfully extolled it in a particular Treatiſe, and commends it as the greateſt Preſervative.

I muſt confeſs, that I am my ſelf of a Phlegmatick Conſtitution, and very inclinable to ſuch an Excretion; and if at any time I ſmell or taſt any thing nauſeous, I am forced to void Spittle in great quantities; which very often happened to me during this Plague, when I had been in Places where the Smell was far from being agreeable. But yet I cannot ſay, that this Spitting (which in me proceeds naturally, in others muſt be excited by Medicines,) was any ways profitable to me to prevent my being infected; by Reaſon that the Peſtilential Venom does more infect the Spirits and Maſs of Blood, than the Lymph from which the *Saliva* is ſeparated. Beſides, Perſons infected did not ſwallow the Venom, or convey it to the Stomach by the Throat, but rather received it through the *aſpera arteria* and Lungs.

In the mean time I cannot ſay that Spitting is ſo much injurious; but in my Opinion it is unneceſſary to force it by peculiar Medicines. For there is a great difference

ference betwixt a Venereal and a Peſtilential Venom: This preſently attacks the Spirits, and if it does not quickly overcome them, it may enter likewiſe the *Lymph*, and then a Salivation may be a Remedy towards curing the Diſtemper; but the other, *viz.* the Venereal Venom is not reckon'd at all dangerous in this Age, nor does it want any Preſervative, provided you avoid the Occaſion of it.

Having thus declar'd my Opinion about Preſervation, and what is to be obſerved therein, I ſhall now proceed to the Cure, and relate the Remedies which I found good in this Diſeaſe. It is certain that at the Time of the Contagion a Phyſician could not always exactly obſerve every Indication. Many Prognoſtick Signs appeared very often at the firſt Onſet, which ſo infallibly came to paſs, that we needed not to attend to the Diagnoſticks; and though neceſſary Means were not for that Reaſon neglected, yet we found that the Diſtemper diſpiſed and ſcorn'd all our Care and Remedies.

If we ſhould have treated the Patient according as is uſual in other Diſtempers, then it would have been neceſſary to have conſider'd what was moſt proper in the threefold Fountain, of Dyet, Pharmacy and Chirurgery. But the Caſe was ſuch, that the Patients would frequently abſtain from thoſe Things which might be injurious to them, and that of their own accord, by a meer Natural diſlike, ſo that there was no need to give them Caution againſt them. Notwithſtanding, ſome would venture too ſoon, (when they were in a good way of Recovery) into the Air, which preſently occaſioned a Relapſe that coſt them their Lives.

Many in the beginning abſtained from Eating and Drinking; and when at laſt they deſired to have a Glaſs of Wine, or the like, we could not refuſe it. Commonly a ſmall and well brewed Beer agreed with the Infected the beſt. As to Sleeping and Waking, ſeeing they came

Symp-

Symptomatically, the Patients could not by all our Perſwaſions either hinder or procure them. As for much Motion, I never adviſed my Patients to it, but rather to keep in Bed and at Quiet; unleſs when out of Fear they would unſeaſonably give themſelves up to too much Reſt, and then it was beſt to make them ſtir about a little; that being the way to prevent Melancholy affecting their Minds: For a brisk and eaſy Mind is very good, but a diſſolute, paſſionate, fearful and uneaſy Temper very pernicious.

As ſoon as ever we were ſatisfied our Patients had the Plague, we abſolutely avoided Purging, Vomiting and Bleeding; for generally thoſe to whom they were adminiſtred, though they ſeemed never ſo robuſt, did not eſcape Death; as many Phyſicians can teſtify, who at firſt made uſe of them to their Patients.

A certain Chirurgion, who attended many during this Contagion, and was a healthy, ſtrong, luſty Man to look at, ſent for me and deſired my Advice. He told me he was ſomewhat faint and anxious, and had ſuch like eaſy Symptoms, by which I judged him to be in no danger; but as ſoon as I felt his Pulſe to be very heavy and feeble, and heard that he had been let Blood, I could make no other than a lamentable Prognoſtication. And he according died the third Day of his Illneſs; and after his Death the Spots appeared. Of ſuch Inſtances I could name a great many, but my deſign is to be as brief as poſſible.

In my Practice I took this Method in curing my Patients: Frſt to extinguiſh the Peſtilential Venom: Secondly, to mitigate and aſſwage the violent Symptoms; and Thirdly, to preſerve as much as poſſible the Natural Strength. My firſt Intention was undertaken with *Bezoardicks* and *Sudorificks*; as *Tinctura Bezoardica Michaelis*, *Mixtura ſimplex*, *Spiritus digeſtivus Schroder. Spirit. Bezoard. Buſſij*, *Eſſentia Theriacalis cum & ſine Camph.*

Eſſentia

Essentia Lignor. Electuar. Diascord. Fracast. Pulvis Bezoard. Wagner. Pulv. Bezoard. Senn. Bezoard. Mineral. Antihect. Poteri, Antim. diaph. Specific. Cephal. Michaelis, and the like.

The before mentioned *Essentia Præservativa* I ordered in the beginning of the Distemper to be given six Times in Twenty four Hours, from Twenty five to Seventy five Drops, according to the Strength and Age of the Patient; and every twelfth Hour the Patient took one of the Bezoardick Powders; which were taken with a great deal of Benefit. I likewise found great Benefit in using the *Bezoardicum Senn.* with the *Bezoard. Wagneri*; or else this, or the former, intermixed with the *Specific. Cephalic. Mich.* or *Bezoard. Mineral. Antihect. Pot.* with the Addition of *Succin. alb.* and *Myrrha rubra, flor. Sulph. lac Sulph. Nitrum Antimon. Sulphur Mineral.* and according to the Circumstances I added sometimes *Crocus orient.* The *Electuarium Diascord. Fracastor.* dissolved in *Aqua destill. Millefol. Sambuci, Tormentill. Scorzoneræ, Scordij, Cardui bened. Angelicæ, Pimpinellæ, Rutæ, Galegæ, &c.* with the Addition of the *Essentia Citri liquida,* and made pleasant with a Syrup of that kind, makes a good Sudorifick and Alexipharmick Potion. The following Mixture I have prescribed with great Benefit to my Patients.

℞. *Aq. Scorzon. Scordij, Tormentillæ, Millefol. aa.* ℥j. *Aceti Bezoard.* ℥ss. *Essent. Lignor.* ℥ij. *Mixtur. simpl.* ℥j. *Elixir. proprietat.* ℥ss. *Syr. de Symphit. Fernel.* ℥ij. *f. Mixtura.* for three Doses.

Upon the taking of this Mixture the Patient was forc'd to sweat, and not to drink any Thing cold; and after the Sweat he took a Cordial Powder, prepared much in the same manner as the *Species cordiales & solares Alexipharmacæ Zwelferi,* or my *Sulphur minerale* mixed with *Magister. Margar. Lap. Hyacinth. Smaragd. Bezoard. orient.* and other Cordials.

Whenever my Patients were very much inclined to be ſleepy and doze much, I then added to the former Medicines Volatile Salts. But if on the contrary I perceived any Colliquations, then I uſed to add *Crocus orient. Theriaca Cæleſtris*, and other Paregoricks, but with Caution. If Convulſions and Spaſms happened, then Cinnabarine Medicines were ſucceſsfully applied. In Hæmorrhages the *Martialia* and the *Tinctura Antimonij* were very Beneficial.

As I did not intend to communicate the whole Catalogue of internal Medicines that have been made uſe of in the Plague, but only ſuch as were found truly good, and by Experience well approved, which I think I have done; ſo I ſhall next give you likewiſe ſuch as were made uſe of externally, and were capable of mitigating the extravagant Symptoms. As when the Patient firſt is taken, his Limbs are quite ſtiff, and as it were benumm'd with Cold by the violent Attack of a cold Ague-like Fit; in which Caſe we preſently apply'd hot Bags fill'd with Oats, or rubbed him well with warm Cloaths, to bring him to Warmth again. Againſt Reſtleſsneſs and *Deliriums*, Anodynes ſignified nothing; but we took the *Fol. Rutæ*, *Salicis*, *Plantaginis*, *Scordij*, *Serpilli*, and the like, mixed with Salt and moiſtned with Roſe-Vinegar, which being clapped warm about the Head did good to a great many. *Vertigo's* and Pain in the Head were often mitigated with the ordinary *Species pro cucupha Diſp. Berol.* of which one Part, mix'd with a quarter part of *Nitrum Antimoniale*, and *fol. Rutæ. Portulacæ & Endiviæ*, of each half a Part; is to be tyed about the Head. Againſt Dozing and Sleepineſs, a Bliſter was apply'd in the Neck, and Snuff blow'd up the Noſe, eſpecially ſome quickning Salts or Spirits rubbed in the Noſtrils. Violent *Diarrhæas* were Indications of outward Convulſions, and were frequently ſtopped with a Topick Medicine of *Theriaca*, *Mithridate*, or *Orvietan*, mixed

mixed with Vinegar, and ſpread upon Leather or Linnen, and apply'd warm to the Navel. Bleeding at Noſe was one of the moſt dangerous Symptoms of any, and could not by any meer outward Application be ſtopped; and if it was ſtopped, it ſignified nothing, eſpecially if it happened the third Day. Yet I found it ſometimes very uſeful, to put Lint moiſtened with Vinegar of Roſes into the Noſtrils, and to tye a ſmall Bolſter with the *lapis hæmatitis* moiſtened with Vinegar upon the hollow part juſt above the Noſe betwixt the Eyebrows; or to put *Rue* and red Roſes, ſtamped and ſprinkled with Rasberry-Vinegar, betwixt a double Linnen, and to apply it to the Neck.

When the Throat was very dry, we uſed Barley Water, and ſometimes added *Sal Prunell.* and ſweetened it with Syrup of *Mulberries*, *Granats*, or the like, and ſometimes alſo uſed it without any Syrup.

In ſuch as ſuddenly loſt their Strength, and had their Spirits dejected, we uſed all manner of Cephalicks and Cardiacks, and whatever we thought wou'd ſtrengthen the Patient; and if he deſired a Glaſs of good Rheniſh, we never deny'd it him: But this Appetite ſeldom happen'd till the Patient was paſt Recovery. Otherwiſe we uſed to give him Cordial Juleps, which were mixed with Bezoardicks, if the Circumſtances of the Diſeaſe ſo required: Or the *Confectio de Hyacintho & Alkermes* mixed with *Aqua Ceraſor. nigr. flor. Boraginis, Lilior. convall. Rubi Idæi*; &c. To which were ſometimes added the *Elix. Citri, Granator. Acetoſitatis Citri, Cydoniorum, Mororum*, &c. Alſo Ptiſanes and Milk-Whey: As alſo Emulſions made of Almonds, and *Semen Pæoniæ, Cardui benedicti, Aquilegiæ*, &c. Hartſhorn Jellies made with Barley-Water, *French* or *Rheniſh* Wine, with the Addition of *Syrup. Acetoſitatis Citri, Diamori, Ribium*, &c. All which do very much refreſh the Patient. Among the Powders the following are likewiſe of uſe; *Lapides*

pretioſi, Coralla rubra, Unicornu verum, Lapis Bezoard. orient. Margarit. orient. Magiſterium Margarit. orient. Magiſt. Corallorum, &c: And, what is more than all the reſt, the *Sulphur Minerale*, if well prepared, as it has been by the famous *Baſilius Valentinus* and *Franciſcus de la Boe Sylvius*; and was communicated to my Father as a particular *Arcanum*.

Beſides theſe, *Epithemata* were applied to the Head, Heart, and Pulſe. I muſt confeſs the Common People aſcribed wonderful Effects to theſe Medicines, and they were therefore often allowed more than Neceſſity required, meerly for their Satisfaction. Neither yet can I ſay that they were of no Efficacy; but that by the Pleaſantneſs of their Smell they had a great Power to refreſh and recreate the Spirits, and ſo retrieved the Patient. Heating and cooling Applications had both their Uſe, and were applied as the Phyſicians thought proper, and the Symptoms would permit. As the *Aqua Carbunculi, Cephalica Carol. V. Apoplectica, Odorifera Reginæ Hungariæ, Lilior. convall. &c.* mixed wieh the *Confectio Alchermes, Species Cordial. Eſſent. Citri ſicca, Eſſent. Ambræ ſicca*; and the *Acetum Bezoardicum, rubi Idæi, Sambuci, Calendulæ*, with *red Roſes, white Lillies, Pœony, white Muſtard, Saffron, Theriaca*, and *Mithridate, Species Diamargarit. frigid. Diatragacanth. frigid. &c.* And becauſe in compoſing ſuch Topick Medicines, one can hardly be much out of the Way, as to their Quantity and Form, therefore Nurſes may as well mix them as an Apothecary, if they have but the Medicines. The common People made uſe of *Theriaca, Bay-berries, bitter Almonds, Thyme, Pepperwort, Water-Germander, Vipers-Graſs*, or the like, mixed with Crumbs of Bread and Salt, a little Camphire, or Vinegar; in which was ſtamped *Rue, Plantain, Houſeleek, Parſley Roots*; as alſo *Leven*, and the like. But I do not remember, nor have I heard, that any of my Patients made uſe of *Amulets*; neither did I adviſe

adviſe them thereto; tho' ſome, to pleaſe their Fancy, may probably have uſed them.

The third Fountain of Healing, *viz.* Chirurgery, remains yet to be ſpoken of, being that which afforded us a great deal of Relief. The Neceſſity of the Diſeaſe, in the Abſence of the Phyſician, often cauſed the Chyrugeon to employ his utmoſt Skill; and indeed we had no want of faithful and skilful Chirurgeons, who perform'd very ſucceſsful Cures; but many, after their Labour and Pains, loſt their Lives. However, it is wonderful what Succeſs many of the common People, that had *Bubo's* and *Carbuncles*, and even *Furuncles*, had in curing themſelves; ſome by the Advice of Phyſicians, as having nothing wherewith to reward a Chyrurgeon; and others according to what they themſelves thought moſt convenient.

To mollifie the *Bubo's* ſome made uſe of Cakes of black Pepper, mixed with Vinegar and Oil of Roſes, or of white Lillies; or they mixed theſe Cakes with Honey, Figs and Wheat-flower, and applied them warm in manner of a, Poulteſs: Others took Camomile Flowers, freſh Butter and Linſeed. To draw the *Bubo's* it was very common to apply roaſted Onions, roaſted Figs, or Leaven, mixed with Vinegar, white Muſtard-ſeed, and Powder of *Spaniſh* Flies; and then after that, they uſed a Plaſter of Oyl of Turpentine, Tar, and yellow Wax.

But as ſoon as a Chirurgeon came, they left the Cure to him, who himſelf had the Precaution to take likewiſe the Advice of a Phyſician in it. Some very much recommended the *Emplaſtrum manus Dei le Mort*; others, the *Emplaſtrum diachylon cum gummis Vigonis*, by it ſelf, or mixed with the *Oxycroceum*, to mollifie the *Bubo's*. Some, by means of Cupping Glaſſes, or Bliſters, or even by Inciſions, happily took them out, and afterwards cured themſelves. But the *Carbuncles* required more Pains, Care, and Caution. In the beginning an *Emplaſtrum defenſivum*,

ſenſivum, applied about the *Carbuncle* to prevent its further Progreſs, did much good; afterwards, to eaſe the Pain, and to bring it to a Separation, they purſued it with *Cauſticks*, *Scarifications*, *Unguentum Ægyptiacum*, *Unguentum Baſiliconis ſimplex. &c.* or what elſe the Surgeon thought convenient. At laſt they applied Digeſtives to cleanſe it, and a healing Plaſter.

I ſhall now ſhew how I inſtructed thoſe, who either out of Poverty could not, or a fooliſh Fear would not make uſe of a Surgeon, to cure themſelves with ſucceſs, not only of *Bubo's*, but of *Carbuncles* alſo. I have already taken Notice that Plaſters need not be applied to *Bubo's* till 4 or 5 Days after their appearing. I ordered the *Emplaſtrum Dyachyl. compoſit. Oxycroceum*, and *Melilot*, of each a like quantity well mixt; or elſe the Plaſter, which is here called *Voegedingianum*, conſiſting of *Lithargyrium*, *Oyl* and *Wax*: Others took *Litharg yrium*, *Minium*, *&c.* as it is deſcribed by *Monconys* in his Travels, p. 119. If it happened that the *Bubo* diſſolved and went away, we let it paſs without more ado; but if it grew bigger, then I ordered them to apply a Bliſter of Leven, Vinegar, and *Spaniſh* Flies; upon which the *Bubo* gradually came to break; and then with a Digeſtive made of the Yolk of an *Egg*, *Turpentine*, *Maſtick*, *Peruvian Balſam*, and a little *Saffron*, with the Addition of *Lapis medicamentalis Crollij*, it was brought to cleanſe. After the putrid Matter was well diſcharged, the Ulcer ſoon heal'd by means of the aforeſaid Plaſter.

Carbuncles were ſoon cured by the following Method. I ordered the Part round the *Carbuncle*, as yet untouched, to be well waſhed with *Aqua calcis*; and then put the *Emplaſtrum Apoſtolicum Zwelferi* over the *Carbuncle*; and over that again a Pulteſs clapp'd between two Linnen Rags, and applied three times a Day, made of *Camomil-Flowers*, *Linſeed*, *Flower of Beans* and *Barley*, boil'd in Milk to a proper Conſiſtence. This draw'd forth

forth the *Carbuncle* admirably well; ſo that the *Eſchar* ſoftened and began to ſweat, and alſo came ſoon to Separation. At laſt the Ointment or Degeſtive only, with a defenſive Plaſter, cleanſed it, and the Cure was perfected with *Emplaſtrum Voegedingianum.* As eaſy as this Method may appear, it had wonderful Succeſs. In the mean time, both the Phyſician and Surgeon ought to join their Aſſiſtance; to which muſt be added the Concurrence of the Almighty, that the Cure may perfectly ſucceed.

The Concluſion.

SIT Philoſophia res ſumma, ad paucos pertinet: Sit eloquentia res admirabilis; non pluribus tam prodeſt, quam nocet: Sola eſt Medicina, qua opus eſt omnibus; ſaid the famous *Quintilian*, to the Praiſe and high Eſteem of Phyſick. Yet we ought not to imagin, that thereby he meant to ſeparate Philoſophy from the Art of Eloquence, and to exclude both from the Art of Phyſick; but rather that all three ought to be united together; or that, if any Separation ſhould be made, the Medical Art, as being the moſt neceſſary Knowledge, ought to be preſerved and maintained.

According to this Expreſſion of ſo wiſe a Man, I ſhould have ſhew'd my Eloquence in the firſt Part of this Treatiſe, and my Philoſophy in the ſecond. But indeed my only Endeavour, as being a Phyſician and Practitioner in theſe dangerous Times, was carefully to remark and obſerve ſuch Things, as might be of Service to Poſterity. I did not intend to publiſh this Memorial, till I had beſtowed ſome further Conſideration upon it, had not ſome learned Men of my Profeſſion, and my very honoured Friends, perſwaded me to it.

In the mean time, I have purpoſely omitted ſeveral Occurrences, that might have been mentioned in the firſt Part of this Treatiſe, as not knowing whether what I have already truly and faithfully deſcribed, may be

acceptable to the Reader. Beſides, this is by no means a grateful Subject; and it had been happy if no body had ever had occaſion to write upon it. But ſince it has pleaſed God to afflict Mankind with this Diſtemper, it is neceſſary to adviſe and acquaint them with what Obſervation and Experience has demonſtrated for their Good and Benefit. I have ſome Thoughts of treating upon this Subject more fully hereafter, if God grants me Life and Health: For we cannot obſerve without Grief, that there is ſtill an opportunity for farther Obſervations, by the Plague's continuing to rage in the Neighbouring Countries with great Violence; and I doubt not but there are diligent and attentive Perſons there, who will communicate to me their Obſervations. Thoſe that labour'd here with me the laſt Year, will, I hope, do me the Favour to furniſh me with what Obſervations they made. I ſhall my ſelf add ſeveral things now omitted, among which will be ſome curious Obſervations, *viz.* How it happened that Women with Child, being infected, came to be happily delivered, and the Child ſafe and well, tho' the Mother died: Again, how the Mother has been ſafely delivered of a live Child, and yet both in a few Days ſnatch'd away. How Nurſes and Women that gave Suck have been infected, and yet as long as they gave Suck perceived little of the Diſtemper; but upon the Child's dying, have followed it in a few Days after. Of theſe and ſuch like Obſervations, I have carefully ſet down a great many.

To the third Part of this third Memorial I ſhould have added, why Iſſues (of the ſerviceableneſs of which many Learned Men have given ſingular Inſtances) are reckon'd among the Preſervatives in the Plague; and whether Clyſters, which yet in the Cure are ſeldom or not at all mentioned, are of any uſe to the infected. All which ſhall, God willing, be explained and fully demonſtratedy hereafter.

XI. *De*

XI. *De* Aquilis Romanis, *Excerpta ex Epiſtola* Guil. Muſgrave, *M. D. et utriuſq;* Societ. Reg. *Socij, ad Virum Clariſſ.* Gisb. Cuperum, *Conſulem* Daventrienſem.

DE *Romanorum Aquila* dubitas, utrum Auro Argentove incruſtata fuerit? [*veteres*, inquis, *eam Auream vel Argenteam faciunt totam.*] At, Amicorum optime, quis unquam veterum hoc affirmavit? Scio quidem (eruditiſſime *Cupere*) Te cum *Stewechio* et *Lipſio*, militiæ *Romanæ* ſcientiſſimis, ſtare. Scio *Dionem Cocceium* (1) Ἀετὸς χρυσοῦς, *Arrianum* (2) Ἀετοὶ ἐμμαλα χρυσᾶ de *Romanis Aquilis* adhibuiſſe. *Xenophon* etiam, de *Perſis* ſcribens, (nam a *Perſis* Aquilæ ſunt acceptæ) Ἀετὸν τινα Χρυσοῦν (3), et ἀετὸς Χρυσοῦς (4). Sed longe hæc a ſcopo.

Suggeſtum in Curia, (ſic a *Floro* (5) dicitur) ſive *Sellam* (ut *Suetonius* (6), & *Cicero* (7) eam appellant,) quam Senatus *Julio Cæſari* decrevit, totam ex Auro fieri, vix credibile eſt; verum potius (ut vult (8) *Buchnerus*) *auratam*, et *multo Auro obductam.* Si quis autem iſthanc opinionem pertinaciter defenſum iverit, *Plutarchum* (9) & *Dionem* (10) habebit adverſarios; a quibus hæc eadem Sella Δίφρος ἐπίχρυσος, i. e. Auro inductus, ſive obductus, in ſumma ſui parte inauratus, dicitur: Ut, a *Suetonio* (11) [*Sedes Aurea*] & plus ſemel a *Cicerone* (12), Elegantiarum

U

(1) Lib. XL. 2) Diſſertationibns *Epicteti.* (3) *Xenophon.* Anab. (4) Pædia *Cyri*, Lib. VIII. (5) Lib. II, Cap. XI. (6) De *Julio Cæſare*, Cap. LXXVI. (7) Philippic, 11. 85. De Divinatione 1, 19. (8) Theſauro Eruditionis Scholaſticæ, voce *Aureus.* Ed. *Lipſienſi*, 1692. (9) In *Cæſare.* (10) Lib. XLIV. (11) Loco jam citato. (12) Locis jam citatis.

gantiarum patre, qua ſignificatione Sella hæc dicatur *Aurea*, facile ſit perceptu. Domum incendio abſumptam, reſtitutamq; *Nero* (ex auratis proculdubio Columnis, oſtiorum poſtibus, Feneſtris, et id genus alijs) *Auream* (13) nominavit, non ex Auro fabricavit.

Notum etiam eſt, a *Cicerone* (14) Aquilam militarem dici *Argenteam*; ſed id ſignificare [*totam eam ex Argento fieri*] non eſt probabile; cum in triumpho *Pompeii* magni, *Mithridatis* Currus [*Aureos, Argenteoſque fuiſſe*] tradit *Plinius* (15). Hoſcine vero totos fuiſſe *Aureos* opinabimur? minime gentium. Ipſa rei ratio contradicit. Quis enim neſcit, Tritum hæc Metalla non pati? Quis neſcit, Auri id pondus eſſe, ut Currus ex eo factus, quod trahi reſpuat, (niſi minutulus, ad Puerorum ludicra) omnino ſit inutilis? *In hujuſmodi dictis, non ſolum verborum ſono, et primo eorum ſenſui, ſed et ipſi naturæ rei conſulendum:* Quæ ſi, in veterum Auctorum interpretatione, diligenter obſervetur Regula, in ijs explicandis exponendiſque, uſus erit profecto non exigui.

Hoc quaſi filo ducti, Labyrinthum hunc ingrediamur; primoq; advertamus, *Aquilam* eſſe totius Legionis Inſigne, fulgens, haſtæ longæ extremitati affixum; ut ab Aquilifero erectum, et a militibus, (præcipue primæ Cohortis) ij vero in Legione, ut ex *Vegetio* (16) patet, Pedites mille centum quinque, Equites centum triginta duo (i. e. 1237) erant, aſpectum, uſui ſit tanto eorum numero, in ſervandis ordinibus, in cuſtodiendis intervallis, atq; adeo forma aciei retinenda. Alta ergo, et magna ſit *Aquila*, neceſſe eſt, ut propoſito reſpondeat: Primum ejus Altitudinem, et deinde Magnitudinem indagabimus.

In *Adlocutionibus*, quas Nummi *Romani* paſſim repræſentant, ijs præcipue, quæ juſtæ longitudinis haſtam humi defixam habent, et *Aquilam* ad perpendiculum eleva-

(13) Sueton. in *Nerone*, Cap. XXXI. (14) Oratione in *Catalinam*, Cap. IX. (15) Lib. XXXIII. Cap. XII. (16) Lib. II. Cap. vi.

elevatam; his, inquam, in Nummis, *Aquilæ* et Haſtæ, cui imponitur, ſimul ſumptarum altitudo, ad Aquiliferi altitudinem eſſe ſolet, ut 4 ad 3; ſive in ratione ſeſquitertia, præterpropter. Ut in Nummis *Caij Cæſaris*, (17) et *Galbæ*, (quos ex Ære majuſculos poſſideo, et jam nunc in manibus habeo) alijſq; licet obſervare, *Galbæ* (18), *Hadriani* (19), *Gordianiq;* (20); quorum figuræ, prelo impreſſæ, extant; et in Nummo *Othonis*, (quem etiam poſſideo) *Securitatem P. R.* exhibente. Dato jam Aquiliferum ſex pedes altum eſſe, (quæ utiq; ſtatura in iſtiuſmodi milite *commoda* cenſeatur) hinc ſequetur, *Aquilam* et Haſtam ſimul acceptas, altas eſſe pedes octo. Hujus altitudinis pars minimum duodecima tribuenda eſt *Aquilæ*, cujus profunditas erit *unciarum octo.* Ex profunditate corporis hujus Aquilini, de ejus ceteris dimenſionibus poſſumus conjicere; et ex ijs de ejus *Pondere.* Erit pondus hujuſce *Aquilæ*, ſi ex *Argento* fuerit, librarum circiter 300 *Trojan.* ſi ex *Auro*, 600 *l. Trojan.* At tantæ molis *Auro*, vel etiam *Argento*, Haſtæ ſummæ impoſito, in altum elevando ferendoq; parem, quem tandem inveniemus *Aquiliferum?* Profecto, quod in cauſis antiquitus ſolebat dici perobſcuris, *Non liquet.*

Lipſius (21) hic opponit ex *Floro*, in clade *Variana* [*Signiferum* Aquilam *intra Balthei ſui latebras gerentem, et in cruenta palude delitentem,*] ne ſcil. potirentur ea hoſtes; ex eoq; corpus *Aquilæ* non magnum eſſe judicat. Balthei latebras, quam velit ille maximas, et quidem ejus, qui vel *Garagantuæ* circundaretur, lubentius concederem, quam Aviculam, Paſſerem, vel Rubellionem magnitudine vix ſuperantem (qualem *Lipſius* eam eſſe vult) *Aquilæ Romanæ* vires & munera præſtare; ſed ut *Florus*, in alijs hujus narrationis partibus, turpiſſime falſus eſt; (qua de re videantur *Ryckij* (22) ad *Tacitum* Animadverſiones)

(17) Vide Tab. II. (18) Stewech. Comment. ad lib. III. Vegetij, pag. 271. (19) Ibi. (20) Acta Eruditorum Menſis Maij, MDCXCIII. (21) De Militia *Romana*, lib. IV. (22) Pag. 33.

ita quidem minime audiendus, in ea, qua de *Aquilæ* magnitudine adeo diſſentit, tum a reliquis optimæ notæ Auctoribus, tum ab ipſa rei natura veritateq;.

Ego quidem (ut de *Aquilæ* fabrica, ex ejus uſu, ferrem ſententiam) e Ligno quodam, vel Subere, vel materia ſive Coriacea, ſive Chartacea, vel hujuſmodi aliquo levidenſi, Lamina ſive Argentea ſive Aurea obducto, cum Alis ejuſdem Laminæ in altum expanſis, & interdum Tonitru ſub *Aquilæ* pedibus, eam fieri conjecto. Talis enim propoſito reſponderet. Aquilæ parvitati immodicæ non parum favent ea, quæ de Sacello ejus, ab Auctoribus nimis obſcura, neque recte ſatis, exhibentur. Aliqui Sacellum, & in eo *Aquilam*, Haſtæ ſuperponi volunt: Sed (ut apertiſſime (23) *Lipſius*) *Cave, ſentias, in Haſta ipſa ſimile quidpiam adfuiſſe Templi.* Ad Caſtra id referendum eſt; in quorum principijs Ædicula quædam, ſive Templum erat, in quo, Religionis ergo, *Aquilæ* & Signa ſervabantur, adorabantur: quod ex *Herodiani* lib. iv. probatur. Hoc autem adjicere placet ὑπόμνημα, quod a *Lipſio* prætermiſſum eſt, nempe ad Domos etiam privatas id referri poſſe videri. Ita enim (24) *Cicero* de *Catilina* [Aquilam Argenteam, *cui domi tuæ* ſacrarium *ſcelerum tuorum conſtitutum fuit.*] Quod ab alijs *Aquilæ Sacellum, Templum,* & *Ædicula* fuit, *Sacrarium* id a *Cicerone* dictum, & quidem in privata Domo poſitum.

Hanc rem conſideranti, nemo eam acu tetigiſſe, mihi magis videbatur, quam *Ant. Auguſtinus* (25), qui ita ſcribit, [*Legiones ſingulæ* Aquilam *ſculptam geſtabant, haſtæq; impoſitam,* Auro Argentove incruſtatam.] Quæ quidem illius verba, rem, ut opinatus ſum, veram exprimentia, in Commentarium meum retuli: rectene vero, an ſecus, cedo quemvis arbitrum.

Tabulæ

(23) Commentario ad Lib. II. Annalium *Taciti.* (24) Loco jam citato. (25) Dialog. III. Antiquitatum in *Cappadocia.*

BRITISH MUSEUM
NATURAL HISTORY.

Fig: 1

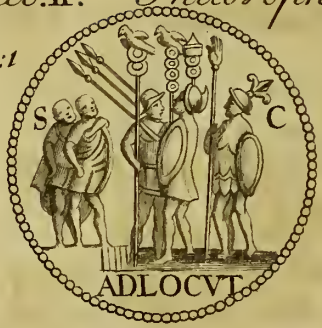


Fig: 2

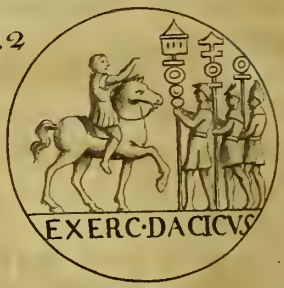


Fig: 3

Fig: 4

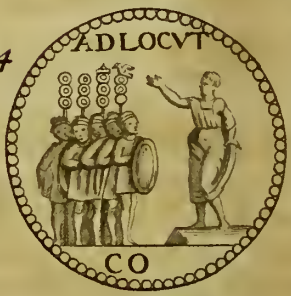


Fig: 5

Fig: 6

Nummos *hosce*, Romanaru *Magnitudinem* Aquilarum *ostendentes, ære incisos*, *Orbi literato D.D.Q.* THO: DIKE, *de* Tetton, *Armiger*, πόλλων ἀντάξιος ἄλλων.

M.V^dr Gucht Sculp

Tabulæ Explicatio.

I. NUmmus *Galbæ*, in altera parte habens ejus Effigiem, cum hac Inſcriptione,

IMP. SER. SVLP. GALBA. CÆS. AVG. TR. POT. *Vide* Tab. II.

In altera *Adlocutionem*, quam hic exhibemus.

II. Nummus *Hadriani*, cujus altera facie

HADRIANVS. AVG. COS. III. P. P.

Alterâ hæc *Adlocutio*.

III. Nummus *Gordiani*: cujus altero latere,

IMP. GORDIANVS. PIVS. FELIX. AVG.

altero, quæ hic cernitur, *Adlocutio*.

Reliqui tres Nummi e meis ſunt, ærei, ejuſdem Magnitudinis cum Figuris; nempe

IV. Nummus *C. Cæſaris*; cujus altera pars habet

C. CAESAR. AVG. GERMANICVS. PON M TR PO.

(i. e. Pontifex Maximus, Tribunitiæ Poteſtatis.)

Altera hanc *Adlocutionem*.

V. Num-

V. Nummus alter *Galbæ*; altera parte habens

SER. GALBA. IMP. CAES. AVG.

altera, *Adlocutionem.*

VI. Nummus *Othonis*, cujus altera facie

IMP. OTHO. CAES. AVG. TR. POT.

altera, SECURITAS. P. R.

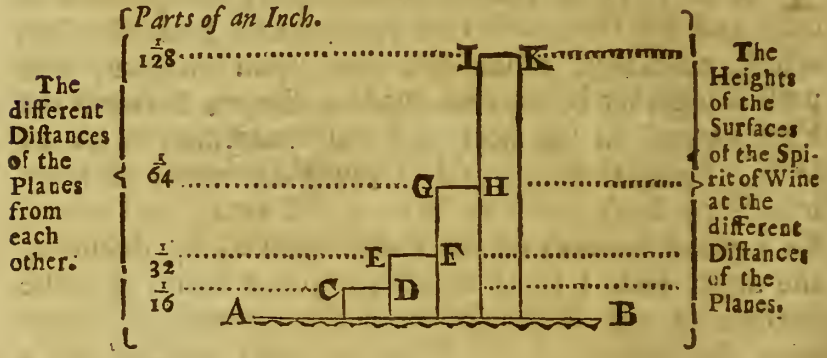
Notatu dignum eſt, in omnibus hiſce Nummis *Aquilas* ejuſdem fere altitudinis eſſe, nempe tres ſupra caput Aquiliferi circiter pedes; unde licèt conjicere, quod tametſi Haſtæ, quibus ſuperimpoſitæ fuerunt *Aquilæ*, non in Nummis omnibus exprimantur, tamen, cum in Nummis 1, 2, 3, 4, integre ad terram uſq; producantur, ejuſdem alias cum hiſce longitudinis eſſe.

XII. *An*

XII. *An Account of an Experiment touching the Proportions of the Aſcent of Spirit of Wine between two Glaſs Planes, whoſe Surfaces were plac'd at certain different Diſtances from each other.* By the late *Mr.* Francis Hauksbee, F. R. S.

I Took two Glaſs Planes, about 6 Inches long, and two broad: Theſe (being made clean) I ſeparated at each end by the number of 32 pieces of Braſs *Laminæ*, whoſe thickneſs, when laid one upon another, and preſs'd together by Screws, made a diſtance between the Planes equal to (as near as I could meaſure) $\frac{1}{16}$ of an Inch. Being thus prepar'd, I plung'd one end of them into ſome ting'd Spirit of Wine; and after I had wetted the inward Surfaces of the Planes with it, by declining the upper end, I ſet them upright; and found that the Surface of the Wine between them remain'd higher than the Surface of the Wine on their outſides, by a diſtance equal to the firſt Line C D above the Line A B, the Line A B being the common Surface, in all the tryals, on the outſide of the Planes. (*See the Scheme hereunto annext*) After this, I reduc'd the diſtances of the Planes to half the former, by taking away 16 of the Braſs *Laminæ* from each end of them; then being plung'd into the Liquid, and uſed in all reſpects as before, I found the Wine to ſtand between the Planes juſt double the height it ſtood at in the former tryal; as may be obſerv'd by the Line E F in the Scheme. Again removing half the number of Braſs pieces, whereby but 8 of them were left at each end, and uſing them

as in the preceding manner, the Wine rose between them to a height just double to that in the foregoing tryal, mark'd in the Scheme by the Line G H. Thus from 8 I reduc'd them to 4 pieces at each end of the Planes; then again the Wine was seen to remain suspended to twice the last observ'd height, represented by the Line I K. In this last tryal the Planes were distant one from the other but $\frac{1}{128}$ of an Inch; nearer than that I could make no certain measure; but I suppose the forecited Experiments are sufficient to ground a Calculation upon, even of the most near Approximations.



XIII. *An*

BRITISH MUSEUM
NATURAL HISTORY.

Philosoph. Transact. N°. 337.

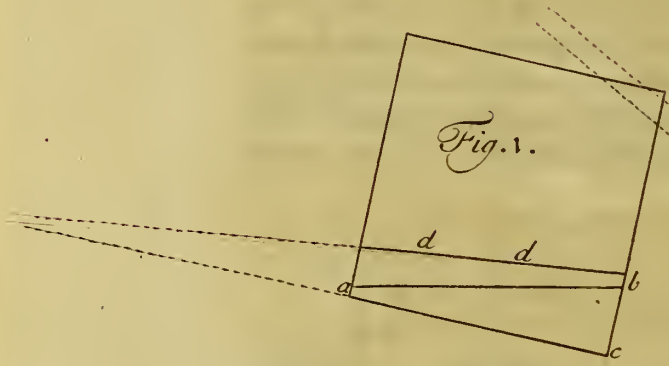


Fig. 1.

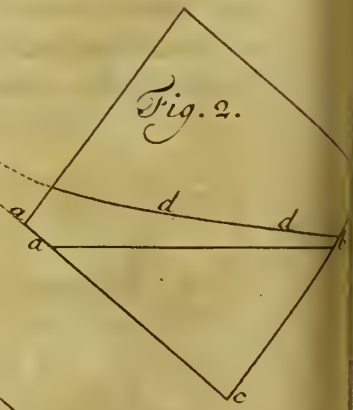


Fig. 2.

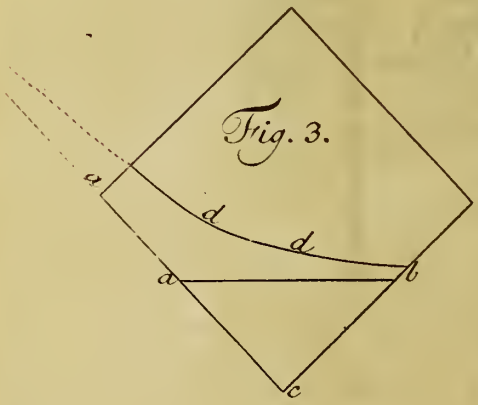


Fig. 3.

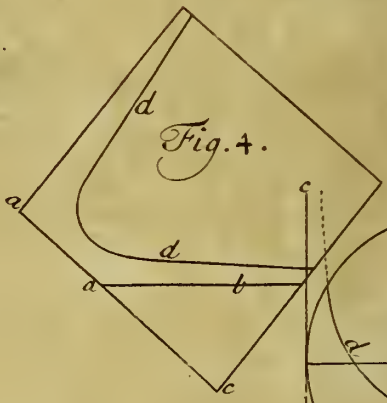


Fig. 4.

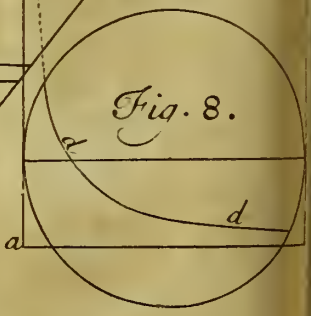


Fig. 8.

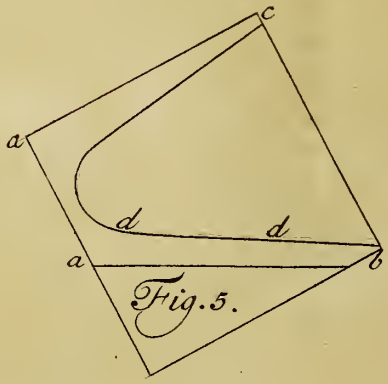


Fig. 5.

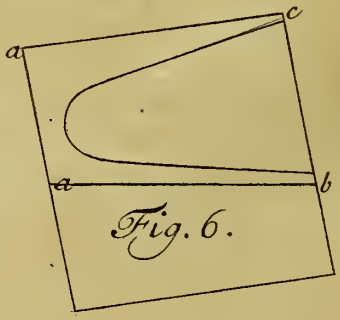


Fig. 6.

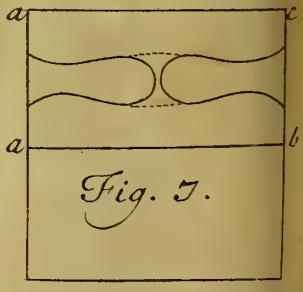


Fig. 7.

XIII. *An Account of ſame farther Experiments touching the Aſcent of Water between two Glaſs Planes in an Hyperbolick Curve. By the late Mr.* Fr. Hauksbee, F. R. S.

THE Figure of the Hyperbolick Curve, form'd by the Aſcending of Water between two Square Glaſs Planes, as related in *Philoſoph. Tranſact.* Numb. 336. gave me occaſion to make ſome farther Enquiries; and by many Experiments I find, that the ſame Curve holds in all Directions of the Planes, the Aſſymtotes being always, one the Surface of the Water, the other a Line drawn along the touching Sides. Thus, when the touching Sides were plung'd under the Surface of the Water, and the Angle *c* was depreſs'd and made to remain lower than the Angle *a.* as in *Fig.* 1. then would be produc'd ſuch an oblique Curve, as may be obſerv'd in that Figure. In all the ſeveral Schemes, *a b* repreſents the Surface of the Water on the outſide of the Planes, and *a c* the touching Sides of the ſame. Now, tho' the Curve *d d* riſes between the Planes in ſuch an obliquity, yet does it conform it ſelf in its Figure to the Aſſymtotes, viz. *a b* the Surface of the Water, and *a c* the touching Sides of the Planes; for ſuppoſing the Aſſymtote *a c* to be continued, as in the prick'd Line, till it ſurmounts the Surface of the Water to ſuch a height, or ſuppoſe the Planes extended in the ſame manner, then would the Water remain between them in the appearance of the prick'd Lines, being at all diſtances from the Axis of the Curve, equal in reſpect to the Aſſymtotes,

See Tab. III.

totes; and ſo of all the reſt of the Curves, as in the Figures 2, 3, 4, 5, 6. which are the reſult of the ſeveral Angles, made by the touching Sides of the Planes. Now when the touching Sides were plac'd upwards, parallel to the Surface of the Water (as in *Fig* 7.) and plung'd wholly under the ſame, then upon lifting them up, in the ſame Poſition, till the weight of the Water between the Planes over-ballanc'd the Power of their Attraction, two Curves, one from each ſide of the Planes, would open themſelves, and meet each other in the middle, as repreſented in the aforeſaid Figure; where they would unite, and make a Figure as join'd by the prick'd Lines, being wider in the middle than towards the ſides of the Planes. And it is highly remarkable, that this Curve would always break out between the Planes, at an equal diſtance between the touching ſides and the Surface of the Water.

The ſame Figure is likewiſe produc'd between two round Glaſs Planes, (ſee *Fig* 8.) the Aſſymptotes being the ſame as the former; that is to ſay, one the Surface of the Water, the other a Tangent drawn from the touching Point, parallel to a Tangent drawn from the open or oppoſite part of the Planes, being at right Angles with a Line drawn thro' the Axis of the ſame. Theſe Experiments I find to anſwer the ſame in *Vacuo*, as in the open Air; ſo that that Element has nothing to do in this extraordinary appearance.

The Planes made uſe of in the foregoing Experiments were about 7 Inches ſquare, open'd on one ſide to an Angle of 20 Minutes or thereabouts; the round Planes were in Diameter near 3 Inches.

XIV. *A farther Acccunt of the aſcending of Drops of Spirit of Wine between two Glaſs Planes twenty Inches and an half long; with a Table of the Diſtances from the touching Ends, and the Angles of Elevation. By the late Mr* Fr. Hauksbee, *F. R. S.*

THE Spirit of Wine did not move between the Planes, with that nimbleneſs as Oil of Oranges, which gave me the Liberty to obſerve the Angles with more Deliberation. The Limb on which the Planes were laid, mov'd in the Centre of a Quadrant of a four Foot *Radius*; the largeneſs of which gave me conveniency of meaſuring the Angles with greater accuracy: But the diſtance between the Drop on the Planes and the Graduations on the Quadrant, made it a little difficult to obſerve them both at once. Yet I believe the following Tables may be depended on to be as true as the Nature of ſuch an Experiment (for any thing that I ſee at preſent) is capable of. I have formerly given a particular Account of the manner of making this Experiment (printed in *Philoſoph. Tranſact.* No. 334.) to which I refer. Theſe Tables are calculated from the touching Ends of the Planes; and it is to be obſerved, that in the Table where the Planes were open'd but to an Angle of 10′ that I could not come nearer than 4 Inches of the touching Ends in my Obſervations: But ſo far as I could go, ſeems to be much in the ſame Proportion (as I have oftentimes obſerved in the courſe of theſe Experiments) with the Table where the Planes were opened to an Angle of 18′

Distances in Inches from the touching Ends.	Angle of Elevation. D.	M.
18½	0	45
16½	0	55
14½	1	05
12½	1	20
10½	1	30
9½	1	40
8½	2	00
7½	2	30
6½	3	20
5½	4	25
4½	6	00
4	7	23
3¾	8	40
3½	9	25
3¼	10	30
3	12	40
2¾	15	00
2½	18	50
2¼	23	25
2	30	00

The Planes open'd to an Angle of 18′

Distances in Inches from the touching Ends.	Angle of Elevation. D.	M.
18½	1	30
16½	1	50
14½	2	10
12½	2	40
10½	3	10
9½	3	30
8½	4	00
7½	5	05
6½	7	40
5½	10	50
4½	14	00
4	18	00

The Planes open'd to an Angle of 10′

XV. *Inſcriptio*

BRITISH MUSEUM
NATURAL HISTORY.

NATURAL HISTORY.

D M
CAMILIVS
SATVRNALIS CA-
MILIE NATVLE PA T
RONE MERENTISSIN E
FECIT

Unc. 8½. Unc. 8½. Unc. 10½.

Inscriptionem *hanc, pro* Libertate *factam*,
Marmore eq$_{13}$ *incisam, suis sumptibus*. Erectiam
incidi voluit GEO. SPEKE, *nobilis* Belga.

XV. *Inſcriptio Tarraconenſis : Cum Commentario* Guil. Muſgrave, *M. D. Coll. Med. et Societ. Reg. Lond. Socij.*

EX Inſcriptionibus *Tarracone* inventis, quas ſuo tempore *multas* eſſe tradidit *Ant. Auguſtinus* (1), una *Britanniam* nuper, a quodam mihi noto et familiari, Cohortis *Anglicæ* ibi militantis a Sacris, advecta, mecum communicata eſt. Jam nunc ante oculos Marmor eſt, album, uncias decem cum ſemiſſe longum, octo et dimidiam latum; in quo Inſcriptio, Literis hic, dimidio minoribus, ære *Cyprio* inciſis, ſic integre legenda eſt (2).

Dijs Manibus. Camilius Saturnalis Camiliæ Natulæ, *Patronæ merentiſſimæ fecit.*

Camilius Saturnalis, olim ſervus, at jam Libertus, utpote a *Camilia Natula* manumiſſus, ea de cauſa Patronæ, a qua cum Libertate Nomen accepit, grate hoc monumentum poſuit.

Plurima ſunt hujuſmodi paſſim monumenta; quod ex *Grutero, Reineſio*, alijſq; patet. Quis autem hic *Saturnalis*, quæve hæc *Natula* fuerit, æque mihi ignotum eſt, ac quod ignotiſſimum. Habet nihilominus Inſcriptio non pauca, quæ notatu digna videantur.

Prima tantum A lineam habet tranſverſam; reliquæ omnes *Perpendicularem*, cruribus interpoſitam, hunc fere in modum A; quod, Imperio ad occaſum vergente, primum in uſu fuiſſe judico. Utut illa res ſit, hanc hu-

juſce

(1) *Anton. Auguſtini* Antiquitatum Dialog. IX. (2) Vide Tab. IV.

juſce Literæ formam, alibi quam in hoc Lapide, nondum me vidiſſe memini. Miror eam omitti et in *Bouterovij* et in Doctiſſimi *Bernardi* Alphabetis. Raram igitur exiſtimo.

E ter quater hic pro Æ: qua de re vide Commentarium in *Julij Vitalis* (3) Epitaphium. In omni hujus Inſcriptionis E, lineæ tres parallelæ, a *perpendiculari* incipientes, ſunt et perbreves, et inter ſe æquales.

Linea 4ta. In utraq; Conſonante L L, Lineola, cui *perpendicularis* inſiſtit, eſt breviſſima: hinc videtur *Rhodius* (4), ad *Scribonium Largum*, aſſeruiſſe, [*Veteres figura parum diverſa Literas* I *&* L *finxiſſe, notiſſimum eſt.*]

PAT-RONE. De ſyllabæ mediæ iniqua diviſione, non eſt et verba faciamus; cum [*hujuſmodi Errorum*, (ut ait *Dauſquius* (5), *ſegetem peramplam habent veteres Inſcriptiones.*]

Eadem fere *Patronæ*, atq; *Patroni* ratio. Impp. *Diocletiano* et *Maximo* A. A. ſancitum eſt, [*neq; Patronæ tuæ obſequijs refragari te fas eſt*:] quam ad Legem *Gotofredus* [*ut* Patrono *ita* Patronæ *debetur obſequium*] (6).

MERENTISSINE pro MERENTISSIMÆ. M in N μεταστοιχεῖσθαι. (7) *Priſciani* Sententia M mutatur in N; potiſſime C. D. T. vel Q. ſequentibus: (ut in *Anceps*, *Eundem*, *Identidem*, *Tanquam.*) Sed, ut quod verum eſſe ſuſpicior, agnoſcam, Operarij hoc erratum eſſe judico; Literam N, nuperrime ſculptam, oſcitanter iterantis.

Nomen hoc eſt *Participiale*, maxime in Lapidibus uſurpatum. Sic *Gruterus* (8).

REGIVS ARISTIVS PRIMITIVVS ARISTIÆ FILETINI PATRONÆ BENEMERENTISSIMÆ ET REGIVS HERMES VXORI MERENTISSIMÆ. P.

Punctorum

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(3) Pag. 138. (4) Pag. 307. (5) Orthographicorum Vol. I. pag. 157. (6) Cod. Lib. VI. Tit. VI. Leg. 8. (7) Lib. I. Ed. Putſchian. (8) Pag. 932. n. 7.

Punctorum hujus Inſcriptionis incerta ratio eſt; alia vocabulis integris ſubjiciuntur, ut in Linea 4ta, alterum gladioli, alterum H dimidiatæ formam habens, ſic ⊣ : tertium triangulare, in fine lineæ tertiæ, poſt ſyllabam C A; ſed omnino nimium.

De Folijs, quæ in Lapidibus cum Epitaphijs incidi ſolent, olim a me (9) poſt alios dictum. Hic autem obſervatu dignum eſt, Herbarum folia, quæ cum Epitaphijs ut Humanæ imbecillitatis indicia adhibentur, non ea de cauſa hic adhiberi: hic, inquam, ubi nihil niſi animum beneficijs obligatum, & lætitia plenum, oſtendit Lapis. Idem mea ſententia dicendum de folijs, quæ in (10) *Longinorum* Altari, quæq; in Altari quod *M. Aurelio* (11) *Antonino* dicatum fuit, incidebantur. Hæc igitur mera ornamenta cælatoris ingenio deberi cogitandum eſt.

Camilij nomen a Patrona *Camilia Saturnalem* accepiſſe, dixi; quod *Romanorum* more factum eſt. Hac de re (12) *Lipſius* [*Iidem* (ſervi) *manumiſſi, in nomina Dominorum veniebant, cognomine excepto: loco cognominis vetus ſitum nomen retinebant*, ut *Marcus Tullius, Tyro:* Ciceronis *Libertus.*]

[*Libertas*, affirmante *Paulo* J. C. (13) *ineſtimabilis res eſt.*] [*Nihil* (14) *ea gratius ſervo præſtare poteſt.*] Patroni, qui ſervos manumiſerunt, et ex juſta ſervitute eos ſolverunt, quaſi *Patres*, qui a morte in vitam illos revocarunt, (15) appellabantur. *Grandi hoc* Beneficio (ſic ab (16) *Ulpiano* dictum eſt) a Patrona decoratus *Saturnalis*, grati erga eam animi monumentum fecit, et marmore, omne ævum duraturo, merentiſſimæ ejus laudes celebravit.

Tanti fuit, apud *Romanos*, Libertas!

XVI. *A*

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(9) Comment. in *Julij Vitalis* Epitaphium, pag. 187. (10) V. *Camdeni Britanniam* Anglice, pag. 570, a Cl. *Gibſono* editam. (11) V. eandem, pag. 602. Iterumq; pag. 852. (12) V. *Juſti Lipſij* Tractatum peculiarem, [*De Nominibus veterum Romanorum*] Cap. II. (13) D. de diverſis Regulis Juris. L. 106. (14) D. de Fideicom. Libert. Leg. 39. (15) Lexicon Juridicum *Joh. Calvini*; voce *Liberti.* (16) D. de Bonis Libertorum. Leg. 1.

XVI. *A Letter from Mr.* Anthouy van Leeuwenhoek, *F. R. S. containing ſome further Microſcopical Obſervations on the* Animalcula *found upon* Duckweed, &c.

Delft, June 28. 1713.

IN my Letter of the 4th of *November*, 1704. I took Notice of the wonderful Figure of an *Animalculum*, that was fix'd in a little Scabboard or Sheath, faſten'd to ſome of the ſmall green Weeds that are found in Ditches full of Water. It is deſcribed in the ſaid Letter by Fig. 1. [See *Philoſoph. Tranſact.* No. 295.]

As often as I have view'd theſe *Animalcula*, and communicated the Sight of 'em to others, we could not ſatisfy our ſelves with looking upon ſuch wonderful Creatures; and the more, becauſe we could not conceive how ſo ſurprizing a Motion, as all of 'em had, could be perform'd; as alſo what ſhould be the uſe of ſuch a Motion. For when we obſerve other Creatures, that are endued with Motion, moving any Parts of their Body, we preſently conclude, that the Parts which they move, are not created in vain; and conſequently we may aſſert, that the wheel-like Motion of the above-mentioned *Animalcula*, is uſeful to their Bodies, tho' we cannot tell exactly how.

In the latter end of *July*, and in the beginning of *Auguſt* laſt, I caus'd ſome of thoſe green Weeds, which they commonly call Duck-Weed, to be taken out of the Water, that runs with a gentle Stream thro' the Town, and

and before my Houſe, only for the Pleaſure of obſerving the afore-mention'd *Animalcula*; together with others of ſeveral ſorts, that were faſtn'd to the ſaid Duck-Weed, or ran about upon it.

Among others, I have found ſome *Animalcula*, the Sheaths of which, at the extream Part, were a little thicker than a Hair of ones Head; which Sheath was compos'd of ſmall Globules, that were very eaſy to be diſtinguiſh'd.

I view'd one of theſe *Animalcula* for a good while together, till I was almoſt weary, and obſerv'd ſeveral times one after another, that when the *Animalculum* thruſts its Body out of the Sheath, or Caſe, and that the Wheel-like or indented Particles mov'd in a Circle, at the ſame time, out of a clear and tranſparent Place, a little round Particle appear'd, which, without nice viewing, could hardly be perceiv'd; which Particle growing bigger, mov'd with great ſwiftneſs, as it were, about its own Axis, and continued without any alteration in its place, till the *Animalculum* had drawn part of its Body back into its Sheath; in doing which it plac'd the ſaid round Particle upon the Edge of its Sheath, which became thus augmented with a round Globule: And whereas the *Animalculum* had plac'd the ſaid Globule upon the Eaſt part of its Sheath, another time it fixt it upon the South or North ſide; by which means the Sheath was regularly encreas'd on all ſides. From whence it plainly appears, how much the Wiſdom of God is concern'd in the regular Formation of the ſaid *Animalcula*.

Having further, and with great exactneſs, view'd the circulating indented Wheel-work, I obſerved that it cauſed an unconceivable great Motion in the Water round about it; by which means abundance of exceeding ſmall Particles, which were only viſible through the Miſcroſcope, were wafted to the ſaid *Animalculum*, and

others were driven away. The *Animalculum* made uſe of ſome of theſe Particles, that were thus drawn to it by its circulating Inſtrument, for Food and Nouriſhment; and other Particles being almoſt come to it, were with great Nimbleneſs driven away; and, as it were, rejected by the *Animalculum:* From whence I infer'd, that thoſe Particles which were thus thruſt away, were not proper for its Food.

From this Diſcovery we may conclude, that ſince this kind of *Animalculum* cannot move from place to place in the Water, nor conſequently ſeek its Food as other Creatures do, (that are endued with Motion) being faſten'd by the Tail or other Parts of the Body, it muſt neceſſarily be provided with ſuch Inſtruments as are fit to move the Water, and by that means come at the Particles floating in it, which ſerve for the Nouriſhment, increaſe and defence of its Body.

If we obſerve thoſe *Animalcula*, which, with their long Tails, are faſten'd to ſome part or other of the Weed, as we have diſcovered a great many on the little Roots of the Duck-Weed; we may obſerve, that they do not only make a Circular Motion with the extream part of their Bodies, which Motion, in proportion to the ſaid part, is very great; but they can likewiſe draw in their Tail, and that with a very quick Motion; by which means they can move the Water out of its place, when they ſtretch their Tails out again, and ſo bringing freſh Water under them, they procure new Food.

I likewiſe obſerv'd a very few *Animalcula*, whoſe Bodies were ſhort and thick, and which were much bigger than thoſe other *Animalcula* that hous'd themſelves in a Sheath, and were faſten'd by their Tail, or extream Parts, to the little Roots of the Duck-Weed: And altho' theſe ſhort and thick *Animalcula* could move from place to place, yet they alſo had a Circular Motion in the fore part of their Bodies. From whence I concluded,

that

that thoſe Motions ſerv'd ſome other purpoſes than only to draw their Food to 'em.

I have formerly reflected, what could be the uſe of theſe indented Wheel-works, which are ſo like the indented Wheels of a Clock, or Watch; but when I conſider further of the Matter, I muſt own that they are very neceſſary to produce a great Motion in the Water; for if it were a round and a ſmooth Wheel, ſuch a one wou'd cauſe but a very ſmall Motion; whereas now each Tooth in the ſaid Wheel or Circle produces a great Motion, in compariſon of what a ſmooth and plain Wheel wou'd do. From whence appears the myſterious and unconceivable Order in the formation of ſuch ſmall Creatures, which are not to be perceiv'd by the naked Eye.

In the beginning of *Auguſt* I was in a Garden that had a Pond full of Fiſh, upon the Water of which I obſerv'd a thin Scum floating that was of a greeniſh Colour, tho' there was nothing Green in the Water; which ſeem'd ſtrange to me, becauſe at other times I had obſerv'd that the Water of the ſaid Fiſh-Pond was very clear, and ſo was that which fed it; and they told me moreover, that when it rain'd the ſaid Scum diſappear'd.

I took then a little piece of a Wooden Lath, and drawing it over the Superficies of the Water, I plac'd a ſmall Drop of the Water upon a Green Wine Glaſs, and then view'd the ſame with the Miſcroſcope, and diſcover'd an inexpreſſible Number of *Animalcula*, ſo exceeding ſmall, that they almoſt eſcap'd my ſight thro' the Microſcope; inſomuch, that no Body wou'd ſcarce believe it but thoſe that have ſeen it: There were alſo ſeveral ſorts of bigger *Animalcula*, mixt with a great Number of little Air Bubbles of an exceeding ſmallneſs. A few Days after I deſir'd 'em to bring me a little of the ſame Water, that I might examine it more nicely;

but I could make no further Diſcoveries than what I before mentioned; and I obſerv'd ſoon after that there were no Air Bubbles remaining.

Now when People waſh their Beer and Wine Glaſſes in ſuch a Pond, who can tell how many of thoſe *Animalcula* may remain ſticking upon the ſides of 'em, and by that means come into the Mouth; which being ſo, People have no reaſon to ask me, how the little *Animalcula*, which I obſerved ſome Years ago in the Matter that remains in and about our Teeth, came thither.

Thus far my Obſervations, which I had made ſome Years ago, and which within theſe few Days are fallen again into my Hands.

I can't forbear acquainting you, that I have lately obſerv'd in the Fleſh of a Whale (and the ſame is to be ſaid of an Ox, and even ſo low as a Mouſe,) that the Fibres thereof, altho' ſixteen times ſmaller than a thick Hair of my Beard, yet are ſurrounded or involved in little Membranes, in ſuch manner, that the fleſhy Particles do not touch each other.

I am, *&c.*

Anthony van Leeuwenhoek.

XVII. *The Case of a Woman big with Child, who recovered of the* Small-Pox, *and was afterwards delivered of a dead Child full of the Pustules of that Distemper. In a Letter from the Reverend* Mr. W. Derham, F. R. S. *to* Dr. Hans Sloane, S. R. Secr.

Upminster, October 7. 1713.

SIR,

THERE was, in the Parish next me, a Great-bellied Woman who had the Small-Pox, and was pretty well recovered, so that she was able to take something to Purge her after it: And on *August* 30. last, she took a Purge (I know not what) which did not work; and on *September* the 1*st*, another Purge, which gave her only a Stool or two. Upon which, *September* the 3d, she took another stronger Purge, that work'd so violently upwards and downwards, that she fell into Faintings and Convulsions: about which time I conceive her Child within her died, but of which she was not deliver'd till *September* the 8*th*. The Child was a Female, and in appearance well made, lusty and strong. At its Delivery, the Midwife judged it had been dead five or six Days; so that the Belly was burst, and the Bowels came out, and the whole Body was inclining to be rotten.

But that which seem'd most remarkable to me, and indeed occasioned me to take Notice of the Case, was, That the Child was very full of the Small Pox, so full, that the Midwife said, hardly a Pins head could be put between the Blisters, which were very Plump, and full of

of Matter, like the Puſtules of an Adult, whenthe Small-Pox is at the Height, only a little depreſſed in the middle. But as full as the Child was, the Mother had as few, and very favourably; her Child, I ſuppoſe, undergoing that which would have been more ſevere upon her.

Having thus related the Caſe to you, as the Midwife told it me, I ſhall leave it to you, and ſuch good Judges as your ſelf, to determine theſe two Things,

I. When a Woman hath the Small-Pox in Pregnancy, Whether it be likely that the Child ſhould be in danger of catching and having that Diſtemper after its Birth?

II. Whether the Child I have been ſpeaking of, had the Small-Pox at the very ſame time the Mother had it, and not rather afterwards, by reaſon the Child was full of it ſome time after the Mother was well recovered?

I am inclined to think, that the great Flux and tendency of the Blood to the Child in the Womb, might draw in the Humour, and prevent the greater Eruption of the Small-Pox in the Mother; and that for want of a due Expence thereof, the remainder afterwards broke out in the Child, and that the Child really had it after the Mother; Nature making the Diſcharges upon the Child which were not compleated on the Mother. But I fear I ſhall need your Pardon for preſuming to interpoſe my Judgment before ſo great a Judge—— I am, *&c.*

W. Derham.

XVIII. *Se-*

XVIII. *Several Observations in Natural History, made at* North-Bierley *in* Yorkshire, *by* Dr. Richard Richardson (M. D.) *Communicated in a Letter to* Dr. Hans Sloane, R. S. Secr.

North-Bierley, June, 12. 1713.

Sir,

I Shall begin my Observations with such as relate to Human Kind, which are only two, and those within the Township of *North-Bierley*. The first was of *John Worsnape*, a poor Boy, who liv'd till he was 17 Years old, and never made Water, and yet was in perfect Health, and Vigorous and Active. He had constantly a *Diarrhœa* upon him, but without much uneasiness. The Obstruction must have been in his Kidneys, for he had never any Inclination to make Water. The Serous Part of the Blood, which should have been thrown off by Urine, was discharg'd by the *Cœlaick* and *Mesenterick* Arteries, by the Mediation of the Glands, into the Guts. He dyed of a Fever.

The second is an Instance of Old Age in *Martha Waterhouse* and *Hester Jager*, both Born in the Township of *North-Bierley*, and Sisters. *Martha* married to *John Waterhouse*; *Hester* died unmarried. *Martha* died about two Years ago, in the Hundred and fourth Year of her Age; and *Hester* this present Year 1713. in the Hundred

Hundred and ſeventh Year of her Age. They had both of them Relief from the Townſhip of *North-Bierley* nigh fifty Years. I ſhould not have taken Notice of their Age ſeparately, it falling ſo far ſhort of ſeveral Inſtances which have happened in this County; but, jointly I do not remember any that have come up to them.

From the Longevity of Humane Kind, I ſhall proceed to the Longevity of Fiſh out of their proper Element. About ſix Years ago, great quantities of Tench were taken in a Pond belonging to *Stephen Tempeſt* of *Broughton* in *Craven* Eſq; and were ſent to the Neighbouring Markets. The Fiſh were taken on *Monday* towards Night, and ſome brought to *Bradford* on *Tueſday* about the ſame time; and not being frequent in our Markets, Six of them were ſent hither by Mr *Ferrand* the Vicar on *Wedneſday*. I not being at Home, the Basket was ſet upon the Kitchen Table, not far from a good Fire; where it continued till *Thurſday* Morning (the Servants not knowing what was in it.) Upon opening the Basket, and looking upon the Fiſh, I thought the Eyes of ſome of them look'd clear: I put two of them into a Pail of Water, and in leſs than two Hours time they ſwam very lively in the Water. The remaining four having no ſigns of Life upon them, I put them into the ſame Pail, and before Night they all ſwam about in it.

Burbolts being a Fiſh not frequently met with in the Southern Rivers of *England*, are often found in this County, eſpecially in ſlow Rivers and ſtanding Waters, as in the River *Foſs* in *York*, and alſo in *Derwent*; but in no Place more frequent, than in the Fen Ditches of the Levels, about four Miles from *Doncaſter*.

I have been ſeveral times preſent, when plenty of ſmall Trouts have been caught in the mountainous Lakes of *North Wales* by Angling; and have, with no ſmall Admiration, conſider'd the difficult Acceſs to theſe Places, where

where a good Footman can ſcarce climb up to them. That theſe Lakes are yearly ſupplied from the Brooks at the Bottom of the Mountains I do not at all doubt, eſpecially in Spawning time, when the Trouts endeavour to ſurmount all Difficulties, by paſſing up the ſmall Rivulets, to depoſit their Spawn, for the Preſervation of their Species, where it is the moſt ſecure from the Violence of other Fiſhes, and there by accident fall into theſe Natural Ponds, where they continue all Summer; no Perſon having yet obſerved (that I know of) Trouts to breed in Ponds. Not only the Trouts that are taken in theſe mountainous Lakes are ſmall, but alſo the Charrs that are taken as they aſcend the ſmall River out of the great Lakes nigh *Lhan Berys*, to depoſit their Spawn in the Sands there. Theſe very rarely exceed a freſh Herring in magnitude, as I have been aſſured by the Reverend Mr. *Evans*, Vicar of *Lhan Berys*, who has been preſent when hundreds of them have been caught; and by the account he gives of them they are in no reſpect different from thoſe taken in *Winander-Mear*, ſave in magnitude, where 'tis no rare thing to meet with them of two Pound weight and upwards. This ſmallneſs in Fiſhes I have ſome time thought to proceed from the Coldneſs of the Water, theſe Lakes being ſupplied with Snow Water from the Mountains eight Months in twelve. The *minera* of Vitriol and Allum, being often met with, in the Hills through which ſome of the Water muſt drain, perhaps does not a little contribute to the roughneſs and coldneſs of the Water. The Contrary we find in our Waters that run through the Limeſtone Rocks, where no rough Salts are found; the Trouts there are large and fat. An inſtance of this we find in the Trouts in *Malham Tarr* in *Craven*, nigh *Setle*, where they are frequently found two Foot long.

I must also take leave to correct one Mistake in Mr. *Ray*'s *Synopsis Quadruped. &c.* p. 195. where he says, that *Mustela vulgaris* is called here a *Foumart* or *Fitchet*. *Putorius* is called here a *Foumart*, *quasi* foul Mart, or stinking Mart, in opposition to the Martes which emit a musky Smell, and are often met with in our Woods, and taken by the Hunters in Snows.

The *Ermin* is not unfrequently met with here in Winter, and look'd upon, when they appear, to presage Snow. I should not here have taken Notice of it, it being also met with in most Counties of *England*, but that I have had an opportunity, in two or three Instances, of observing the Time of its Changes. It begins to change its Colour from Brown to White, about the beginning of *November*. I had one of them brought me about *November* was two Years, when I first observed this change. I have seen one or two of them, that in the beginning of *March* were changing from White to Brown. *Qu.* Whether these Animals do not always continue White in the more Northern Parts of the World?

The *Nut-hatch*, or *Nut-jobber*, is not frequently to be met with in the South, yet is so common with us, that I have sometimes seen six or seven of them in one Day in my own Woods. This must be the Bird that Dr. *Plot* in his *Nat. Hist.* of *Oxfordshire*, calls a *Wood-Cracker*, and takes to be an undescribed Bird. I have with much Pleasure often observed these Birds to crack Nuts, which they do with very great Dexterity. I order'd one of my Servants, that was with me in a Wood last *Christmass*, to observe from whence she fetch'd her Provision; which he soon discover'd in a hollow Tree, and cutting the Place open, brought from thence several Pints of very choice Nuts.

I met with a Nest of the *Regulus Cristatus*, in a thick Thorn Hedge, in my own Orchard, which was built round,

round, and a little Hole at the ſide; the outſide was green Moſs, the inſide Hair and Feathers, not much unlike that of the common Wren. The Eggs were ſmall and white, with many brown Spots upon them. The Note of the Cock is very agreeable, not much unlike ſome of the *Parus* Kind. I do not remember that I have ſeen any of theſe Birds in Summer before.

Coclea pomatia major edulis Geſneri. I never met with it in the North; but I found it in plenty laſt Year about the middle of *May*, in *Stunsfield* Fields, amongſt the Briers and Brakes, eſpecially nigh the famous *Roman* Pavement.

I am, *&c.*

RIC. RICHARDSON.

XIX. *Epiſtola* Nicolai Facij, *Reg. Soc. Lond. Sod. ad Fratrem* Joh. Chriſtoph. Facium *dictæ Societatis Sodalem, qua vendicat Solutionem ſuam Problematis* de Inveniendo Solido Rotundo ſeu Tereti in quod Minima fiat Reſiſtentia.

Nicolaus Facius Johanni Chriſtophoro Facio Duillierio, R. S. S. Fratri ſuo chariſſimo S. P. D.

VIdiſti, Frater amantiſſime, quæ de mea Solutione Londini impreſſa Problematis de Inveniendo Solido Rotundo ſeu Tereti in quod Minima fiat Reſiſtentia, ſcribere non reveritus eſt V. Cl. Joh: Bernoullius tuus, vellem & meus. Negat ille me, hominem licet ipſi prorſus ignotum, ex tali Solutione, ſecundis Fluxionibus implicata, ad Solutionem illam Newtonianam regredi poſſe, cui ſimilem invenit & ipſe Bernoullius. Concludas forſan talibus dictis innui, Quo tempora iſta ſcriberet Bernoullius, Regreſſum hujuſmodi utique facilem ipſi fuiſſe. Sed obſtant pluſculum Jacobi Bernoullij Viri Cl. nec unquam pro Meritis laudandi Literæ, quibus plane intelligas nec ipſum, quo tempore ſcriberet, nec ejus Fratrem Transformationem illam noſtram Æquationum Fluxionibus involutarum cognoviſſe, qua multiplicantur in Productum, verbi gratia, x^{λ} y^{λ} rite determinandum, vel etiam in Quantitatem aliam complexam. Sub Multiplicatione autem, ut bene noſti, continetur & Diviſio. Hanc autem Transformationem, a me Anno 1687 & 1688 inventam, Hugenium Moyvræumque edocui

edocui, à quibus ejuſdem Scientia ad alios forſan defluxerit. Tentamine autem olim facto, comperi Newtonum Præſidem noſtrum Digniſſimum illam vel eo jam tempore non ignoraſſe; aut potius omnium primum inveniſſe.

Sed reſpondere cum potuiſſem pluribus modis ad Cl. Joh. Bernoullij velitationes, volui Inveſtigationem illam omnium longe ſimpliciſſimam Actis Lipſienſibus inſerere, quam Joh. Bernoullius non poſſet reſpuere; & ex qua præterea intelligeret ipſum immerito falſi arguiſſe quæ ſcripſeram de Invenienda pariter Linea Breviſſimi Deſcenſus, adhibita rite conſideratione motus quaſi Radij Lucis continue refracti, juxta Fermatij Doctrinam Refractionum.

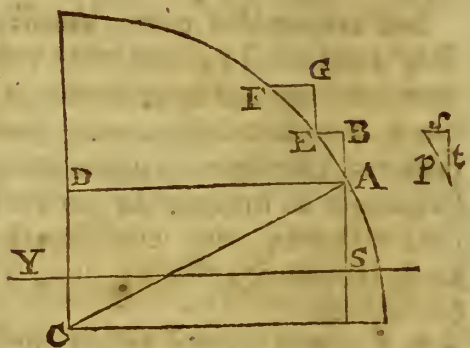
Jam vero, ut me ipſum prætéream tales Criminationes non merentem; & tibi, Frater amantiſſime, quo docente prima ſuſcepi olim Mathematicarum Scientiarum Semina, & Genevenſi noſtræ Academiæ, iſtud animi grati teſtimonium debere videor, ut ex Æquatione illa quam in Pagina 16. exhibui, rite deductam Æquationem primis tantum Fluxionibus involutam ſcriptis conſignem: Quam ſcilicet requirebat Johannes Bernoullius, & me prorſus negabat invenire poſſe. Nec enim iſta ſcriptis mandari poterunt, quin Via ſternatur ad augendam inter Mathematicos Geometriæ ſecretioris Scientiam. Eatenus vero ſi demonſtrem viam, Deo ſic volente, mihi apertam fuiſſe, Modeſtiam tamen in me minus forſan requiras, quam arguas ſupinam in publice prædicandis ejus generis Beneficijs, a Deo Optimo in me collocatis, Negligentiam.

Videantur in Tractatulo noſtro quæ ad Figuram ejuſdem II pertinent.

In adjuncta Figura ſit C Centrum Circuli Oſculantis A E F, qui cum Sectione Solidi quæſiti cujus Axis ſit S Y quam intime coincidat in A. Eritque hujus Circuli

culi Radius C A vel $u = \frac{3psx}{tt} - \frac{px}{s}$: quæ erat Solutio noſtra.

Fiat, ut prius, A S ad Solidi Axem Y S perpendicularis = x; cujus fiat Fluxio invariatæ Magnitudinis A B = $\dot{x}$: Sitque B E ad Axem parallela = $\dot{y}$; Rurſuſque erigatur E G = $\dot{x}$; Et erit G F ad Axem parallela = $\dot{y} + \ddot{y}$.



Erit autem p ad t ut u ſeu $\frac{3psx}{tt} - \frac{px}{s}$ ad $\frac{3sx}{t} - \frac{tx}{s}$ ſive $\frac{3\dot{y}x}{\dot{x}} - \frac{\dot{x}x}{\dot{y}}$; quod æquabitur ipſi n ſeu AD ad Axem parallelæ, poſita ſcilicet C D ad eundem Axem perpendiculari : quæ C D vocetur m.

Rurſus erit p ad s ut u ſeu $\frac{3psx}{tt} - \frac{px}{s}$ ad $\frac{3ssx}{tt} - x$, ſive $\frac{3\dot{y}\dot{y}x}{\dot{x}\dot{x}} - x$; quod æquabitur ipſi m ſeu C D. Cujus Valorem dediſſe otioſum quidem hic eſt, ſed uſum habebit in ſequentibus.

Jam vero ex Oſculantis Circuli A E F Proprietate habebitur, productis ipſis B A, B E ad alteram uſque Circumferentiæ partem, $\dot{x} \times \overline{2m + \dot{x}} = \dot{y} \times \overline{2n - \dot{y}}$.

Rurſuſque ex ejuſdem Circuli Proprietate habebitur, productis ipſis G E, G F ad alteram uſque Circumferentiæ Partem, $\dot{x} \times \overline{2m + 3\dot{x}} = \overline{\dot{y} + \ddot{y}} \times \overline{2n - 3\dot{y}} - \dot{y}$.

Ergo

Ergo, ſubducta priori hac Æquatione a poſteriori, erit $2\dot{x}\ddot{x} = -2\dot{y}\ddot{y} - \dot{y}\dddot{y} + 2n\dot{y} - 3\dot{y}\ddot{y} - \ddot{y}\ddot{y}$.

Deletiſque Terminis infinite minoribus quam ſint reliqui, erit $2\dot{x}\ddot{x} = -2\dot{y}\ddot{y} + 2n\dot{y}$.

Subſtitutoque ipſius n Valore, erit $\dot{x}\ddot{x} = -\dot{y}\ddot{y} + \frac{3x\dot{y}\ddot{y}}{\dot{x}} - \frac{x\dot{x}\dot{y}}{\dot{y}}$: Id eſt $\overset{*}{\dot{x}^3\dot{y}} + \overset{**}{\dot{x}\dot{y}^3} - \overset{**}{3x\dot{y}\ddot{y}\dddot{y}} + \overset{*}{x\dot{x}\ddot{x}\dddot{y}} = 0$.

Componitur hæc Æquatio ex ſolis Indeterminatis x, $\dot{y}$, earumque Fluxionibus $\dot{x}$, $\ddot{y}$, invariabilique Quantitate $\dot{x}$, Quantitatibuſve Coefficientibus datis. Bina autem ſunt Paria Terminorum in quibus occurrunt eædem utrinque literæ, literarumque Poteſtates, niſi quatenus Quantitas Fluens per Literam unam expreſſa in Fluxionem convertitur, vel Fluxio in Fluentem. Quæ Paria Terminorum ſunt $\dot{x}^3\dot{y} + x\dot{x}\ddot{x}\dddot{y}$, et $\dot{x}\dot{y}^3 - 3x\dot{y}\ddot{y}\dddot{y}$; ex Terminis utique Generatoribus duobus duntaxat orta. In tota enim Æquatione nihil obſtat quominus ipſa tranſformetur ſcilicet Multiplicatione facta in $x^\varkappa \dot{y}^\lambda$, determinatis rite ipſis Indicibus $\varkappa$ et λ, ut ea ratione nova Æquatio proveniens tractabilis evadat.

Ergo juxta noſtram iſtarum Tranſformationum Theoriam, in Generatore ex quo exoritur Terminorum Par primum unico Aſteriſco notatum, erit Numerus Dimenſionum Indeterminatæ x ad Numerum Dimenſionum Indeterminatæ $\dot{y}$, id eſt, Erit $1 + \varkappa$ ad $1 + \lambda$, ut Coefficiens 1 in Termino $\dot{x}^3\dot{y}$ ad Coefficientem 1 in Termino $x\dot{x}\ddot{x}\dddot{y}$. Rurſus in Generatore, ex quo exoritur Terminorum Par alterum Aſteriſco duplici notatum, Erit Numerus Dimenſionum Indeterminatæ x ad Numerum Dimenſionum Indeterminatæ $\dot{y}$, id eſt, Erit $1 + \varkappa$ ad $1 + \lambda$, ut Coefficiens 1 in Termino $\dot{x}\dot{y}^3$ ad Coefficientem -3 in Termino $-3x\dot{y}\ddot{y}\dddot{y}$; unde fit $\varkappa = -\frac{3}{2}$, & λ

& $\lambda = \overline{-\frac{3}{2}}$; ac proinde Multiplicator $x^{\kappa}\dot{y}^{\lambda} = \overline{x^{-\frac{3}{2}} \times \dot{y}^{-\frac{3}{2}}}$.

Erit igitur $-x^{-\frac{1}{2}}\dot{x}^{2}\dot{y}^{-\frac{1}{2}} - x^{-\frac{1}{2}}\dot{y}^{\frac{3}{2}} = \pm q$ Æquatio ſuperioris Æquationis per $x^{-\frac{3}{2}}\dot{y}^{-\frac{3}{2}}$ multiplicatæ Generatrix : Eſt autem q Quantitas determinata. Quam Æquationem Generatricem, (Fluentem autem vocant alij) ſi quadraveris, ut tollantur Radices, proveniet $x^{-1}\dot{x}^{4}\dot{y}^{-1} + 2x^{-1}\dot{x}^{2}\dot{y} + x^{-1}\dot{y}^{3} = qq$; id eſt $\frac{\dot{x}^4 + 2\dot{x}^2\dot{y}^2 + \dot{y}^4}{x\dot{y}} = qq$. Quæ ipſa eſt Æquatio Newtoniana, quam & Joh. Bernoullius invenit, & ipſe ego antehac erui, facillima omnium quæ ſperari poſſint ejuſdem Æquationis Inveſtigatione. Determinatur autem Quantitas qq, vel datis Poſitione Axe indefinito Y S, Puncto A, & Solidi Tangente in A; vel datis Poſitione Puncto A, Centro Oſculantis circuli C, & A D ad Axem Solidi parallela.

Plura equidem jam aliquot retro ab hinc Annis ſcribere conſtitueram, ſed aliud Tempus expectandum. Vale.

Dabam Londini die Maij 17. 1712.

XX. *Botan-*

Botanicum Hortenſe. III.

XX. *Giving an Account of divers Rare* Plants, *obſerved this Summer, A. D.* 1713, *in ſeveral Curious* Gardens *about* London, *and particularly the* Society *of* Apothecaries *Phyſick Garden at* Chelſea. *By* James Petiver, *F. R. S.*

SECT. I. *Ferns*, or *Capillary* Plants, *Ray* H. Pl. 131.

1 *Names.*

ADiantum *Americanum* Cornuti Pag. 7. Fig. *Adiantum* fruticoſum *Americanum* Park. 1050. *fig.* fruticoſum *Braſilianum* C B. 355. 4. Prodr. 150. deſcr. *Cornutus* his *Canada* Maidenhair, *Ray* 148. 2.

Character. This is a beautiful *Fern*, differing from our true *Maidenhair* of the *Shops*, in having its Branches more ſpecious and curl'd.

Diſcovery and Place. *Cornutus* firſt diſcovered it in *Canada*, ſince which it has been found in *Virginia* and *Maryland*. I have obſerv'd it at the Biſhop of *London*'s at *Fulham*, and in our Phyſick Garden at *Chelſea*.

Common *Ceterach*, Ray 139.

2 *Names.*

Aſplenium C B. in Matth. 646. fig. opt. *Aſplenium* ſive *Ceterach* Park. 1046. fig. *Ger.* 978. fig. 1. *Jonſt.* 1140. fig. 1. *Chabr.* 556 Ic. 6. I. B. 3. lib. 37. p. 749. Fig. Ceterach *Officinarum* CB. pin. 354.

Place. Grows on old *Churches*, *Caſtles*, and *Stone Walls* in divers Parts of *England*, eſpecially about *Briſtol*, where I have obſerved it plentifully.

3 *Names.*

Oſmund Royal, or *Flowring Fern*, Ray 151. cap. 5. *Filix florida* ſive *Oſmunda* Regalis *Jonſt.* 103. fig. *Filix* ramoſa, floribus inſignis *Chabr.* 554. Ic. 4. I. B. 3. l. 37. p. 728. Fig.

728. Fig. *Osmunda* Regalis *Ger.* 971. fig. Osmunda *Regalis* sive *Filix* florida *Park.* 1038. Fig.

Place. This is an elegant *Flowering Fern*, bearing its *Seed* in branched Tuffs at the top of its Leaves. It grows with us in rotten Mooriſh Grounds, and moiſt Woods.

SECT. II. *Rheede, Graſs*, &c. Ray 1235.

Spaniſh *Rheed*, Ray 1275. 2.

4 *Names.* Arundo *Cypria* Jonſt. 36. fig. 2. *Arundo* domeſtica C B. in *Matth.* 137. fig. 1. *Arundo* ſativa C B. *Theatr.* 271. fig. Sativa *quæ* Donax *Dioſc.* & *Theophr.* CB. 17. 2. phyt. 40. 3. *Arundo* maxima & Hortenſis *Chabr.* 193. Ic. 2. I. B. 2. l. 18. p. 486. fig. *Harundo* Donax *Park.* 1209. fig. 3. Harundo *Cypria* Ger. 32. fig. 2.

Place. Our *Angling Canes* are made of this *Rheed*; its much bigger in all its Parts, and thicker than our common *Engliſh* Rheed. It grows very tall in the Biſhop of *London*'s Garden at *Fulham*. They are brought to us from *Spain*, *Cyprus*, and other hot Countries.

Bobarts *Drank* or *Haver-graſs*.

5 *Name.* Feſtuca *Avenacea* ſterilis ſpicis erectis *Bobarti*, Ray *Syn.* 237. *edit.* 2. p. 261. 3. *Pluk.* Tab. 299. fig. 2.

Place. Mr *Jacob Bobart* firſt diſcovered this in the Hedges beyond *Botley* near *Oxford*, who hath lately ſent it to the *Phyſick Garden* at *Chelſea*.

File *Catſtail* Graſs, *Ray* H. Pl. *Vol.* 3. p. 602. pl. 11.

6 *Names.* *Gramen* ſpicatum inſtar Limæ dentatum *Hort. Catholic.* 81. Gramen *Typhinum* ſpicis *Limæ* inſtar aſperis, é glumis minimè bicornibus compactis *Ray* H. Pl. V. 3. p. 602. 11.

Gardens. I formerly obſerved this *Graſs* with Dr *Uvedale* at *Enfield*, and this Summer in *Chelſea Garden* raiſed from Seed, which that accurate Botaniſt Monſieur *Vaillant*, ſent me from *Paris*.

Soft *Creſted* Graſs, *Ray* 1265. 5.

7 *Names.* Gramen *Criſtatum* ſubhirſutum *Park.* 1159. 2. *Gramen* ſpicâ criſtatâ ſubhirſutum C B. 3. 2. prodr. 8. 19. I. B. 2. l.

2. l. 18. p. 469. c. 91. *Gramen* montanum hirſutis folijs, ſpicâ leucophæâ diruptâ *Pluk.* Tab. 33. Fig. 7. *Gramen* pumilum hirſutum ſpicâ purpuro-argenteâ molli, *Ray* 1265. 5. Syn. 182. 4. ed. 250. 3.

This is thicker, ſofter, and more looſe than our common *Creſted Graſs*, and in ſpike more nearly reſembles our yellow *Spring Graſs*: Dr *Zuinger*, Phyſician, and Son to the famous Profeſſor of that Name, a very accurate Botaniſt, hath lately, amongſt other curious Plants, ſent me this Graſs, which he gathered on the hilly Meadows about *Baſil*, where *Caſpar Bauhine* firſt diſcovered it. He ſays it grows with the common, but more rarely; the ſame found in the Woods there, he obſerves to ſport or vary in its ſpike, *viz.* ſome more looſe and greeniſh, others thicker and yellowiſh; the Leaves and Stalks in ſome are hairy, in others ſmooth. Dr *John Jacob Scheutzer*, that Curious Naturaliſt, has alſo obſerved it about *Zurick*, and from whom I received it by the Name of *Gramen cum caudâ Muris purpuraſcente aliquatenus ſimile*, l. B. 2. l. 18. p. 473. c. 106. So that here is 3 Plants reduced to one. Mr *Dale* and Mr *Doody*, who firſt obſerved it in *England*, and communicated it to Mr *Ray* and Dr *Pluknet*, took it for a new Graſs. *John Bauhine* alſo, who found it in the ſandy Fields and Paths near *Mont-belgard*, knew not that it was the ſame which his Brother *Caſper Bauhine* had deſcrib'd long before in his *Prodomus*, and firſt obſerv'd in the Woods about *Cliben* near *Baſil*, from whence I lately received it. *Remarks.* *Places.*

Painted *Graſs*, or *Ladies Laces*, Ray 1281. 9. 8

Gramen Paniculatum fol. variegato C B. *Theatr.* 37. fig. 3. *Panicul.* aq. Phalaridis ſemine, folio variegato *Inſtit.* 523. *Gramen* ſtriatum *Ger.* 24. Ic. 2. *Jonſt.* 26. fig. opt. *Gramen* ſtriatum vel ſulcatum *Park.* parad. 457. fig. *Gramen* ſtrijs pictum *Chabr.* 186. Ic. 4. I. B. 2. l. 18. p. 476. fig. *Names.*

This pretty *Graſs* is finely ſtriped with green and white, and is a beautiful Ornament in moſt Gardens. *Place.*

Lobel says, it grows wild on the Hills and Woods of *Savoy*.

Provence *Grass* with black Seed.

9 *Names.* *Gramen* Paniculatum *Provinciale*, Aquilegiæ semine *Schol. Bot.* 258. Pluk. *Tab.* 32. fig. 2. H. Ox. 2. p. 214. pl. 29. *Gramen* Panic. latifol. locustis crassioribus, sem. nigro *Aquilegia* simili Inst. 522.

Dr. *Sherard* (now Consul of *Smyrna*) brought this Grass first into *England*; it hath grown in *Chelsea* Garden divers Years.

SECT. III. *Plants* with *blink* Flowers, *Ray* 154.

10 *Names.* Canary *Tree Sorrel*, Ray 3. p. 116.

Acetosa arborescens subrotundo folio ex *Insulis Fortunatis* Pluk. *Tab.* 252. fig. 3.

Gardens. This grows 3 or 4 Yards high with woody Stalks and round Leaves, continuing Green all the Winter. I have seen this in all the *Curious Gardens* about *London*, as *Hampton Court*, *Fulham*, *Chelsea*, *Enfield*, *Mitcham*, &c.

Great *Mountain* Sorrel, Ray 178. 2.

11 *Names.* *Acetosa* montana maxima CB. 114. 2 *Phyt.* 181. 2. max: *Germanica* Park. 742. Fig. 1. *Oxalis* major *Broccenbergensis* Thal. 82. *Oxalis* sylvatica maxima I. B. 2. l. 23. p. 990.

Places. This is much larger than our common *Sorrel*. Mr *Edward Lhwyd* found it in *Wales*; it grows also on the Mountains of *Savoy* and *Switzerland*.

Indian *Bladder Sorrel*, Ray 179. 8.

12 *Names.* Acetosa *Americana*, fol. longissimis pediculis donata C B. 114. 6. pr. 54. c. 18. 1. *Acetosa* vesicaria *Americana* Park. 744. 11. *an* Acetosa *Indica* Ejusd. 744. 10? *Acetosa* vesicaria *utriusque Indiæ* annua *Almag.* Bot. 8. Oxalis *Africana* I. B. 2. l. 28. p. 992. Fig. Acetosa *Africana*, elegantissima, flosculis ex luteolo virentibus *Chabr.* 312. Ic. 2.

Place. Its Beet-like *Leaves* and large *Bladders*, distinguish it from other *Sorrels*. This Plant is supposed to grow in *Africa*

Africa and both the *Indies*. I have only ſeen it as yet from *Aſia*, viz. *Fort St George* near the Coaſt of *Malabar*.

Common *French Sorrel*, Ray 180. 10.

Acetoſa rotundifolia C B. *Phyt.* 182. 7. rotundif. hortenſis C B. 114. 8. *Oxalis* rotundifolia *Dod.* Pempt. 649. Fig. *Oxalis* folio rotundiore repens, *Chabr.* 311. Ic. 5. I. B. 2. l. 23. p. 991. Fig. *Oxalis* ſativa, *Franca*, rotundifolia repens *Lob.* 292. Ic. 1. *obſ.* 156. fig. 13 *Names.*

It grows on the Walls about *Geneva* in many Places, and in the Cliffs of Rocks on the top of *Mount Lupe* near *Sauel* in *Languedoc*. *Place.*

Grey *French* Sorrel.

Acetoſa rotundifolia Hortenſis, fol. glauco *Boerhave* Ind. Plant, *H. Lugd. Bat.* 184. 6. 14 *Names.*

This differs from the common *French Sorrel*, only in having paler froſty Leaves.

Naples *Sorrel*, Ray 181. 15.

Acetoſa *Ocimi* folio, Boucephalephora *Col.* 150. fig. opt. Acetoſa *Ocimi* folio *Neapolitana* C B. 114. 12. Acetoſa *Cretica* ſem. aculeato *Ejuſd* 114. 11. Phyt. 182. 10. *deſcr.* Park. 743. fig. 7. *Oxalis* minor aculeata *Candiæ* Chabr. 311. Ic. 6. I. B. 2. l. 23. p. 991. Fig. 15 *Names.*

This grows in ſeveral Parts of *Spain*, about *Montpelier* and in the *Balearick* Iſles, as well as in *Candy* and about *Naples*. *Place.*

Catſtail, curl'd *Amaranth*.

Amaranthus criſtatus, ruber, *Typhoides*. 16 *Names.*

This is an elegant variety of *Red Amaranth*, with tail-like Taſſels growing out of its Curls. I obſerved this the laſt Summer with the Curious Mr *Charles Du Bois*, amongſt many other rare Plants in his *Gardens* at *Mitcham*. *Garden.*

Scate-tail'd *Sicilian* Amaranth, *Ray* 203. 7.

Cadelari Sicula *Parietariæ* folijs *Nobis*. Amaranthus *Siculus* ſpicatus, radice perenni *Bocc.* 16. Tab. 9. *Pluk.* Tab. 260. fig. 2. 17 *Names.*

This

Kind. This is a new Species of *Amaranth*, which the *Malabars* call *Cadelari* with long ſlender Spikes, and its Seed Veſſels hanging downwards. *Boccone* firſt diſcovered *Place.* this about *Catanea* in *Sicily*, Mr *Alex. Brown* at the *Maderas*, and Dr. *Sloane* in the Ditches about St. *Jago* in *Jamaica.*

Silver ſcaled, *Knot graſs*, Ray 185. 5.

18 *Names.* *Polygonum* minus candicans CB. 281. 5. *Phyt.* 550. 3. minus candicans ſupinum *Bot. Monſpel.* 209. *Polygonum* mont. niveum & ſericeum H. Ox. 592. 5. Paronychia *Hiſpanica* Cluſij 478. Fig. *ſive* Anthyllis *nivea* Chabr. 452. Ic. 6. I. B. 3. l. 29. p. 347. Fig.

Kind. This ſpreads like our common *Knot-graſs*, but differs in having many white skinny Membranes amongſt its Leaves. *Place.* Dr. *Boerhave* marks this as an *Indigena* of *Holland.* Its very common on the Sea Coaſts of *Spain* and *Languedoc.*

Knotty *Knawell.*

19 *Names.* *Knawell* nodoſum *Herniariæ* facie *Nobis.* an *Polygonum* capitulis ad genicula echinatis *Bocc.* 40. Tab. 20.

Diſtinction. This Plant does not well agree with *Boccones* Figure or Deſcription, his having many Leaves at each joynt, and but 3 or 4 Branches from one Root; whereas this is as branched as common *Knot-graſs*, and generally but one Leaf at each whirl, except towards the tips, where they are there ſometimes 3 or 4. I obſerved this at Mr *Fairchild*'s Garden at *Hexton* from Seed, which Dr *Sherard* ſent to the Reverend Mr *Wm. Stoneſtreet.*

SECT. IV. Plants with *Double* and *Radiated Flowers.*

Jagged, Purple, *Lettice.*

20 *Name.* *Lactuca* altiſſima, folio *Sonchi* laciniato, fl. parvo cæruleo *Boerhave* Ind. Plant. *Hort. Lugd. Bat.* 3. p. 21.

Its

Its *Leaves* very like the *Jagged Sow-Thistles*, with Spoakey Tufts of Purple *Flowers* like the *Chondrilla cærulea laciniata*. We are obliged to *Dr Boerhave* Botanick Professor of *Leyden*, for the Knowledge of this Specious Plant. *Description.*

Frosty-headed *Hawkbeard.* 21

Hieracium Aphacoides *Cichorei* folio, calyce glauco. *Name.*

Its lower *Leaves* are deeply cut like *Succory* the Barbulæ, or Stalk leaves, are broad at the Base, with a Beard or two on each side, ending in a plain sharp Point, the Peculiarity in this Plant it its *glaucose* or *frosty Heads*, each Stalk ending in a single midling Flower. It heads from *June* till *August*. *Description.*

Great *Ægyptian* Sow-thistle. 22

Sonchus *Ægyptiacus* Giganteus. *Name.*

The lower *Leaves* are very long, and deeply jagged, those which ride the Stalk are large and round at the Base, covering each side of the Stalk, and in all its parts much larger than our *Common Sow thistle.* This was raised from Seed which *Monsr. Vaillant* sent me this Spring from the *Royal Garden* at *Paris*. *Description.*

Indian *Sowthistle* with curl'd Seed. 23

Sonchus *Orientalis* Lactucæ folio, fl. luteo, *semine* elegánter crenato *Boerhave* 12. p. 23. *Name.*

This very much resembles the *Crepis* Dalech *Lugd* 562. but that the Flowers are larger, and Stalk swelled under the Calyx, which is composed of 2 or 3 ranges of broad pointed smooth Scales. The *Heads* turgid when the *Seed* are ripe, which are finely notch'd and curl'd. It *Flowers* from *July* till *November*. *Description.*

Tangier *Sowthistle*, Ray 1857, 24

Sonchus Tingitanus *Papaveris* folio *El. Bot.* 377. *Inst.* 475. Chondrilla *Tingitana*, floribus luteis, *Papaveris Hort.* folio *Herm.* H. Leyd. 659. *fig. opt.* Condrilla *Tingitana* fl. aureo, extus circa perianthium circulo purpureo notata *Hort. Bosian.* *Names.*

Its

Description. Its lower *Leaves* are like the *Garden Poppy*, which higher ſaddle or ride the Stalk. The *Flowers* yellow with a purple rim at the bottom; its ſcaley heads bottle-like the *Sowthiſtles*. The whole Plant yields a hot and bitter *Milk*.

Purple *Italian* Starwort. *Ray* 268. 13.

25 *Names.* *Aſter* Atticus *Dod.* 266. fig. Inguinalis *Chabr.* 325. Ic. 5. Aſter *Atticus* ſive *Amellus* C. B. in Matth. 817. fig. 1. *cærul.* vulg. C B. 267. 1. Aſter *Atticus* purpureo flore I. B. 2. l. 24. p. 1044. fig. *Aſter* Atticus *Italorum* fl. purpureo *Park.* 132. fig. *Aſter* Italorum *Ger.* 392. fig 2. *Jonſt.* 486 Ic. 2. *Tinctoris* flos 1. *Tragi* 154. Fig.

Place. Its a handſome *Bow-pot* Flower, and cultivated in moſt Gardens. It grows wild in *Narbone*, *Italy*, *Sicily*, &c.

Smirna Wooly *Flea-burr.*

26 *Names:* Baccharis *Smirnea* folio ſubrotundo pannoſo. Aſter *Verbaſci* folio, flor. minoribus nudis *Sherard.*

Deſcription. This elegant Plant grows about a foot high; from a thick root, ſpreads many wooly, roundiſh, pointed thick *Leaves*, the largeſt ſomewhat more than an Inch long, but not quite ſo broad. Theſe ſtand on woolly pedicles, the longeſt about an Inch and a half, above the midſt of the Flower Stalk, come ſingle yellowiſh naked *Heads*, each with a ſmall Leaf, and both Stalkleſs, theſe branch a little towards the Top. *Dr Sherrard*, that accurate Botaniſt, and now *Conſul* of *Smyrna*, ſent me a Specimen from thence, ſince which I have ſeen it with the *Dutcheſs* of *Beaufort* at *Chelſea*, who was pleaſed to make me a Preſent of it for our *Phyſick Garden.*

White *Canada* Folesfoot. *Ray* 292. 3.

27 *Names.* Cacalia *Americana* Park. 1221. fig. 2. *Conyza* Americana *Urticæ* folio, flore albo *El. Botan.* 361. *Inſt.* 455. Eupatorium *Canad.* Urticæ folio, flor. albo *Herm.* H. Leyd. 667. *Eupatorium* Urticæ folio, flor. albis *Alm. Bot.* 140. Valerian *Urticæ* folio, fl. albo *Cornut.* 20. fig.

Its

Its a ſpecious Plant, with oppoſite Nettle *Leaves*, and tuffs of white thrummy *Flowers*. It grows in *Canada* and *Virginia*, where it Flowers in *September*, but in our Gardens much ſooner. *Name.*

Pyrenean Primroſe *Fleabane*, Ray 3. p. 152. pl. 16 & 17. 28

Conyra latifolia viſcoſa, ſuaveolens fl. aureo è *Gallo-Provincia* Schol. Botan. 199. *Alm. Bot.* 117. pl. 9. *Inſtit.* 455. Conyza *Pyrenaica* folijs Primulæ veris *Parad Batav.* 127. fig. opt. *Conyza* prealta alato caule, odorata *Bocc.* Muſ. 168. *Conyza* prælta odorata, alato caule, capitulis barbatis *Baccharidis Monſpel.* æmulantibus *Bocc.* Muſ. Tab. 121. Fig. *Conyza* major alato caule, fol. *Primulæ veris* longe amplioribus, graviter odoratis *Triumphet.* 65. Eupatoria *Conyzoides* maxima, *Canadenſis*, folijs caulem amplexantibus *Pluk.* 87. fig. 4. ex ſent: *Parad. Bat.* *Names.*

Its lower *Leaves* are like thoſe of *Primroſes*, but larger; the higher Ride or Saddle the Stalk, are clammy and ſmell ſtrong, as does its *Flowers*, which are ſome rim'd, others naked, as Monſieur *Tournefort* has obſerv'd reſembling the Plowmans *Spikenard*. Father *Boccone* found this on the Mountains of *Bolonia*, *Modena* and *Tuſcany*. Dr *Tournefort* on the *Pyreneans*, and in *Provence*. *Deſcription.* *Places.*

Small true *Fleabane*, Ray 261. 2.

Conyza minor vera I. B. 2. l. 24. p. 1054. *Chabr.* 329. Ic. 6. *Jonſt.* 481. Ic. 2. *Conyza* minor vera *Penæ* Park. 127. fig. 9. *Conyza* fæm. *Theophraſti*, minor *Dioſcor.* C B. 265. 3. *Phyt.* 515 2. *Virga aurea* minor, folijs glutinoſis & graveolentibus *Inſtit.* 484. 29 *Names.*

Its long narrow *Leaves* and ſpiked ſmall Flowers, diſtinguiſh it from the greater. It grows wild in *Spain*, *Italy*, and about *Montpelier*. I obſerved this in Flower with Mr *Fairchild* at *Hoxton*, Nov. 4. 1713. *Place.*

Common *Leopardsbane*, Ray 274. 1. 30

Doronicum vulg. *Park.* 319. fig. 1. *Doronicum* latifol. *Clus.* l. 4. p. 16. Fig. *Doronicum* radice *Scorpij* C B. 184. 3. *Phyt.* 337. 1. *Doronicum* majus *officinarum* Ger. 620. Icon. 1. *Names.*

Jonst. 759. Ic. *Doronici* 3 varietas *Lob.* 649. Ic. 2. *Belg.* 593. *Obs.* 370. Ic. 3.

Place. It grows plentifully on the Mountains about *Geneva*, and Flowers with us in *May* and *June*.

Small *Rose-Marygold.*

Asteriscus ramosus, flore minore.

31 *Names.* This very well agrees with the Figure and Description of *Chrysanthemum* Conyzoides *Lusitanicum* Breyn. *Cent.* 157. c. 77. but there being several varieties of it mentioned by Dr *Herman* in his *Hort. Leyd.* p. 144. & 658. as also by *Tournfort* in his *Institut.* p. 479. that its hard to determine which of them this is, and therefore till they are better known, I have chose to give it the Name above-mention'd.

Parsly-leaved, *Tooth'd Marygold*, Ray 3. p. 228. 9.

32 *Names.* *Bidens* Americana, *Apij* folio *El. Bot.* 367. *Inst.* 462. *Amer.* Apij folio glabra *Plum.* Cat. Plant. *Amer.* 10. *Chrysanthemum* aq. fol. multifidis *Cicutæ* nonnihil similibus *Virginianum* Herm. H.Leyd. 146. *Chrysanthemum* Virgin. fol. *Cicutæ* nonnihil similibus *Par. Bat. prodr.* Chrysanthemum *Americ.* Cordis Indi folio *Parad. Batav.* 123. Fig. opt. *Chrysanthemum* Cannabinum fruteſcens *Virginianum* Sambuci laciniatæ foliis, & facie *Breyn.* Prodr. 2. Chrysanthemum *Chinense* foliis plurifariam divisis, *Halicacabi peregrini* æmulis *Pluk.* Tab. 22. fig. 4. *Cuambu* sive *Caryophyllata* Pis. 209. fig. *Marcgr.* 45. Ic. *Ray* 607. ex sent. *Parad. Bat.* 123.

Distinction. Its deep cut, smooth Leaves, distinguish it from all others. It flower'd in *Chelsea* Garden this Autumn, from Seed I received from Dr *Vaillant* at Paris.

Elder, *Tooth'd Marygold*, Ray 3. p. 226. 2.

33 *Names.* *Bidens* Americana *Sambuci* folio *Nobis.* Bidens *Canadensis* latifolia flore luteo *El. Bot.* 367. *Inst.* 462. *Chrysanthemum* aquat. Cannabinum *Americanum* Hort. Blæs. 254. *Chrysanthemum* Cannabinum bidens *Americ.* caule erecto firmo subrubente *Bob.* H. Ox. 21. p. 17. Sect. 6. Tab. 5. Fig.

Fig. Chryſanthemum *Virginianum* bidens Cannabinum *Alm. Bot.* 100. pl. ult. *Eupatorium* aq. Americanum *Park.* 596 marg. 7. Eupatorium *Canadenſe* fl. luteo H. *Reg. Paris.*

This has often 5 Leaves like Elder, and is much taller than our *Engliſh* kind. It grows wild in *Canada* and *Virginia.* *Place.*

Feaverfew *Chamomill.* 34

Chamæmelum montanum, *Abſinthij* folio *Parthenij* odore Hort. Catholic. *Names.*

Theſe Leaves are green, and in their Segments reſemble the *Pyrethrum* Canarienſe or Pellitory *Daſie.* Its Flowers large, white, and one at the top of each Branch. Dr *Vaillant*, that accurate Botaniſt, ſent me the Seed of this amongſt many others, gathered in the *Royal Garden* at *Paris.* *Deſcription.*

Silver *Chamomill.* 35

Chamæmelum *Abſinthij Auſtriaci* folijs argenteis. *Name.*

Its lower *Leaves* finely cut, and ſilvery, out of which grows a ſingle white Flower, at the top of each Stalk. I am obliged to Mr *Jacob Bobart* for the firſt Specimen of this elegant Plant; ſince which I have obſerved it in *Chelſea* Garden. *Deſcription.*

Auſtrian *Sneezwort*, or *Straw Marygold*, Ray 287. 1. 36

Xeranthemum fl. ſimplici purpureo majore *Herm.* Hort. Leyd. 635. *Xeranthemum* aliud, *Ptarmica* quorundam *Chabr.* 341. Ic. 6. I. B. 3. l. 25. p. 25. fig. *Jacea* Oleæ folio, capitulis ſimplicibus C B. 272. 2. Jacea *Oleæ* folio altera C B. Phyt. 533. 26. Ptarmica *Auſtriaca* Clus. l. 4. p. 11. fig. opt *Pann.* 548. Ic. *Park.* 480. Ic. 1. *Dod.* 710. Fig. *Ger.* 484. Ic. 3. *Jonſt:* 607. Ic. 3. *Lob.* 645. Ic. 2. *Belg.* 645. fig. *Obſ.* 295. fig. 1. *Names.*

Cluſius firſt obſerved this Plant about *Vienna* in *Auſtria* Of its *everlaſting Flowers* they make *Winter Noſegays*, it thriving very well in divers Gardens. *Place.*

Small *Straw-Marygold* with large Seed. 37 *Names.*

Xeranthemum fl. purpureo ſimplici minimo, *ſemine* maximo *Flor.* 1. Hort. Lugd. Bat.

This chiefly differs from the *Auſtrian Sneezewort*, in having very ſmall Flowers, but large turgid Seed.

38 SECT. V. *Capitated* and *Nodiflorus* Plants.

Names. Purple *Salamanca* Bottle-head, *Ray* 324. 8.

Stæbe Salamantica 1. *Clus.* l. 4. p. 9. Fig. *Hiſp.* 360. fig. *Park.* 476. fig. 1. *Stœbe* major *Tabern.* 155. Ic. 2. *Hiſt.* Vol. 1. p. 542. Fig. *Stæbe* argentea major *Jonſt.* 730. Ic. 1. argentea minor *Ger.* 590. Ic. 2. *Stæbe* major fol. *Cichoraceis*, mollibus lanuginoſis CB. 273. 1. Stæbe *Salamantica* major *Brancionis* Lob. 543. Ic. 2. *Belg.* 643. fig. *obſ.* 293 Ic. Stæbe *Salam.* prior *Clus.* ſive *Jacea* Intybacea I. B. 3. l. 25. p. 36. fig. *Chabr.* 344. Ic. 3. Jacea *Stæbe* dicta major, fol. *Cichoraceis* CB. phyt. 531. 16. *Jacea* folijs *Cichoraceis* villoſis altiſſima, fl. purp. *El. Bot.* 352. *Inſt.* 444.

Place. It grows plentiully by Field ſides and Vineyards in *Salamanca*, and Mr *Jezreel Jones* has obſerved it about *Lisbon*.

39 Broad, *Pale* Eryngo.

Name. *Eryngium* latifolium planum, *caule* ex viridi palleſcente fl. albo CB. 386. 7. Var.

Very like the Broad *Eryngo*, but has paler Stalks and white Flowers; it heads in *July* and *Auguſt*.

40 Rawolphs *Syrian* Eryngo.

Names. Eryngium *Syriacum* ramoſius, capitulis minoribus *Bobart.* Hiſt. Ox. p. 166. 13. *Eryngium* cæruleum pumilum *Rawolph.* Hort. ſicc.

Deſcription. The lower Leaves are like the common *Mediteranean Eryngo*, but much leſs, and little more than trifid near the Root; it branches much and wide, with many ſmall *ſtarry Heads*, armed with 5 or 6 long and narrow ſtrait *Spines*, with one often ſhorter than the reſt. It Flowers in *Auguſt* and *September*. I find this Plent in a *Hortus Siccus*, made by that curious Botaniſt Mr *John Baniſter*, of the Plants he collected in the Phyſick Garden at *Oxford*, before he went to *Virginia*. The lower Leaves

in

in this Specimen are almoſt round, which very well agrees with Mr *Bobart*'s Deſcription, as does the reſt of the Plant, with his and my own.

SECT. VI. *Umbelliferous* Plants, *&c.*

41 Candy *Alexanders*. Ray 436. 2. *Names.*

Smyrnium Lob. 709. Ic. 1. *Belg.* 864. Fig. *Obſervat.* 407. *Chabr.* 399. Ic. 2. Smyrnium *Creticum* Ger. 869. fig. *Jonſt.* 1024. fig. *Park.* 930. fig. 2. Smyrnium *Creticum* perfoliatum I B. 3. l. 27. p. 125. fig. Smyrnium *Amani* montis *Dod.* 698. fig. Smyrnium *Dioſcorid.* Dod. *purg.* 493. fig. Smyrnium *Dioſcorid.* & Hippoſelinum *Col.* pt. 2. c. 8. Fig. *opt.* p. 21. *Smyrnium* peregrinum rotundofolio C B. 154. 14. *Smyrnum* verum peregrinum, vel *Smyrnium* Dioſcorid. C B. phyt. 270. xv.

Character.

The Peculiarity of this Umbell, is to have its Root Leaves deeply cut, and thoſe which ride the Stalk whole and round. *Mr Ray* obſerved this in *Sicily*, and *Fabius Columna* on the Mountains of *Italy*. *Place.*

42 Oriental *Fennel Carrot*.

Daucus Orient. *Fœniculi* folio. Myrrhis *Orient.* folio anguſtiore *Peucedani*, ſem. villoſo *Boer.* 17. 11. *Names.*

Its very fine *Fennel* Leaves and hoary *Seed*, diſtinguiſh it from what I have yet ſeen. *Mr Jacob Bobart* ſent me the firſt Specimen of this from *Oxford*, ſince which I ſaw it with Flower and Seed in *Mr Charles du Bois* his Garden at *Mitcham* in *Surrey*. *Place.*

Zanon's fine *Sicilian* Carrot. *Ray* 464.

43 *Daucus* 2 Sicnlus, *Sophiæ* folijs *Zanoni* Ray 464. Dauco 2 *Siciliano* con foglie di *Sofia* Zan. 80. Fig. 31. Chærophyllum *Siculum* fol. *Sophiæ*, ſem villoſo *El. Bot.* 264. *Inſt.* 314. *Names.*

Its fine criſp hoary *Leaves* diſtinguiſh it from other *wild Carrots*. *Place.*

Smooth

44 Smooth *Globe-Fennel*, Ray 424. 2.

Names. *Cachrys* ſem. fungoſo lævi *Bobart.* Hiſt. Oxon. 267 1. *Cachrys* ſem. fungoſo lævi, folijs Ferulaceis *Moris* Umbell. 62. *Libanotis* Chabr. 36. Ic. 5. *Libanotis* 1. Dod. 306. fig. *Libanotis* ſeu *Roſmarinum* C. B. in Matth. 575. fig. 1. Libanotis *Cachryfera*, ſive *Cachrys* vera *Park* 882. fig. 1. Libanotis *Cachryopheros* quibuſdam, floribus luteis I. B. 3. l. 27. p. 40. fig. *Libanotis* Galeni, *Cachrys* verior *Jonſt.* 1010. Ic. 4. Libanotis *Færulæ* folio, ſem. anguloſo C. B. 158. *Libanotis Færulæ* folio ſem. craſſo C. B. phyt. 278. 1. *Cachrys* verior *Libanotis* Galeni *Lob.* 783. Ic. opt. 2. *Belg.* 957. fig. *Obſerv.* 455. fig. *Libanotis* candida *Cæſalpini*, Roſmarinum *Cam.* Epit 544. Fig.

Dr Tournefort in his *Inſtitutiones* Rei Herbariæ p. 325. has given ſome of theſe Synonyms to the *Cachrys* ſem. fungoſo ſulcato plano majore, fol *Peucedani* anguſtis *Moris.* contrary to the Opinion of that Author, and *Mr Bobart*, who adds them to this Plant, whoſe *Fennel* Leaves, yellow *Flowers*, and large ſmooth *Seed* diſtinguiſh it from the other kinds.

Place. *Dr Magnol* has obſerv'd this wild about *Montpellier*; it grows alſo on the Mountains of *Italy*, *Sicily* and *Creet*. It *flowers* and *ſeeds* with us in *May*, *June*, &c.

Parſley *Spignel.* Meum *Apij* odore.

45 *Names.* The *Stalks* of this are very brittle, and both they and the *Leaves* have a *Parſley* ſmell.

46 Saxifrage *Spignell.* Meum *Seſeli* odore.

Names. The *Stalks* of this are tough and have a mixt Smell between *Meadow Saxifrage* and *Carrot.*

47 *Camerarius* his Mountain *Thorow-wax.* Ray 472. 3.

Names. *Perfoliata* montana *Cam.* Hort. 120. Fig. 38. *Perfoliata* Montana latifolia C. B. 277. 3. *Perfoliata* mont. maxima C. B. phyt. 543. 4. Perfoliata *Alpina* magna longifolia I B. 3. l. 27. p. 198. *Chabr.* 408. Ic. 6. *Beupleurum* montanum latifolium. *El. Bot.* 259. *Inſt.* 310.

The

The lower *Leaves* are ſomewhat like *Limonium*, and thoſe which ride the Stalk, reſemble the *Braſsca* campeſtris.

SECT. VII. *Starfoils* Ray 48

Grey *Sicilian* Bedſtraw. *Ray* Vol. 3. p. 264. 7. *Names.*

Gallium ſaxatile glauco folio *Bocc.* Muſ. 173. Tab. 116.

Its *Leaves* long, narrow, ſmooth and glaucoſe. *Grows* on Mount *Peregrine*, three Miles from *Palermo* in *Sicily*. *Place.*

Narrow *Spiked-Madder.* Ray 485. 3. 49

Rubia anguſtifolia ſpicata C. B. 334. 13. Prodr. 145. 4. *Names.* *Rubia* ſpicata anguſtifolia *Park.* 276. fig. 2. *Rubeola* anguſtiore folio *El. Bot.* 106. *Inſt.* 130.

Its long *Spikes* and narrow *Leaves*, diſtinguiſh it from others. *Grows* wild in divers Places about *Montpellier*. *Place.*

SECT. VIII. Rough *Clypean* Plants. *Ray* 487.

Evergreen *Borrage.* Ray 494. 4. 50

Borrago ſemper virens *Ger.* 653. fig. 3. *Jonſt.* 797. fig. 4. *Park.* Gard. 249. 3. fig. 4. p. 251. Bugloſſum *Hiſpanicum* Tab. 419. Ic. 1. Hiſt. Vol. 2. p. 124. Fig. *Bugloſſum* folio *Borraginis* Hiſpanicum I. B. 3. l. 33. p. 578. fig *Chabr.* 515. Ic. 4. *Bugloſſum* latifolium ſemper virens C. B. 256. 2. Phyt. 493. 2. *Names.*

This is a beautiful Plant, altho pretty common in divers *old Gardens*, flowering in *April* and *May*.

Great yellow *Honeywort.* Ray 506. 2.

Cerinthe aſperior flore flavo *Jonſt.* 538. Ic. 2. *Cerinthe* flore flavo aſperior C. B. 258. 3. *Cerinthe* major, flore flavo *Park.* 521. Ic. 3. *Cerinthe* quorundam major flavo flore *Cluſius* l. 5. p. 167. Fig. *Cerinthe* quorundam major ſpinoſo folio, flavo flore I B. 3. l. 33. p. 602. fig. 51 *Names.*

Its *Flowers* very like *Comfry*, but of a fine yellow; the *Leaves* ſprinkled with whitiſh prickley Bliſters. *Cluſius* found this wild in *Valentia*. Mr Ray *ſays*, Its very common in all the Vineyards and Field ſides both in *Italy* and *Sicily*. *Place.*

Great

52 *Great* yellow *Honeywort* with a red Neck. *Ray* 506. 1.

Names. *Cerinthe* major *Ger.* 431. fig. 1. *Jonst.* 538. fig. 1. *Lob.* 397. Ic. 2. *Belg.* 483. Fig. *Obs.* 215. fig. *Tab.* 420 Ic. 2. *Hist.* 2. p. 130. fig. *Cerinthe* major fl. rubro & luteo *Park.* 520. Ic. 1. *Cerinthe* quorundam *Chabr.* 520. Ic. 4. *Cerinthe* quorundam major, versicolore flore *Clus.* l. 5. p. 167. fig. opt. *Hisp.* 411. fig. I. B. 3. l. 33. p. 602. fig. *Cerinthe* sive *Cynoglossum* montanum majus C B. 258. 1. *Cynoglossum* montanum majus, *seu* Cerinthe CB. *phyt.* 497. 8: & app. *Maru* herba *Dod.* 632. fig.

Place. The Peculiarity of this Plant is in its *Flowers*, having each a *Purple Circle* in the middle. *Grows* wild both in *Spain* and *Portugal*.

53 Small *Houndstongue*. Ray 491. 5.

Names. *Cynoglossum* medium C B. 257. 7. *Phyt.* 497. 5. *Cynoglossum* minus flore cæruleo. *Park.* 513. fig. 10. *Cynoglossa* minor mont. serotina altera *Plinij* Col. c. 59. fig. p. 179. *Cynoglossum* pusillum *Austriacum* alterum *Clusij* 169. Ic. *Cynoglossum* pusillum *Narbonense* Adv. 250. fig. *Lob.* 581. Ic. 2. *Belg.* 685. fig. *Buglossum* angustifol. sem echinato. *El. Bot.* 110. *Inst.* 134.

Places. This Plant, as it grows in *Gardens* very exactly resembles *Columna*'s Figure, both in its ramification and shape of its Leaves; but it more resembles *Clusius* his *Figure*, when it grows *wild*, as appears by a Specimen I have by me of *Mr Ray*'s own gathering, about *Geneva:* He also observ'd it about *Ments*. It grows likewise in *Italy* and about *Montpellier*.

SECT. IX. *Whirle* Plants. *Ray* 508.

54 Grey *Calamint*. Ray 569. 4.

Names. Calamintha *Ocimi* folio C B. 228. pl. 1. Calamintha *Ocimi* sylvest. fol. non crenatis C B. *phyt.* 432. 1. *Calamintha* fol. & flore parvo incana I. B. 3. l. 28. p. 230: fig. *Chabr.* 416. Ic. 5. *Calamintha* mont. vulg. *Jonst.* 687. fig. 1. *Ger.* 556. fig. 1. *Calamintha* minor incana *Tab.* 351. Ic. 1. *Hist.* Vol. 2. p. 66. fig.

Its

Its *Leaves* plain and ſmall as *Lemon Tyme*, but white and pointed; the *Flowers* ſmaller than other Calamints. *Lobel* gathered this on the Hills in *Italy*, and Dr. *Salvadore* about *Barcelona*. *Place.*

Great flower'd, *Calamint*, Ray 569. 3. 55

Calamintha magno flore C B. 229. 4. *Phyt.* 433. 5. *Calamintha* fl. magno, ex calyce magno I. B. 3. l. 28. p. 229. fig. *Chabr.* 416. Ic. 3. *Calamintha* 2 montana præſtantior *Tab.* 350. Ic. 2. *Hiſt.* Vol. 2. p. 65. fig. 3. *Names.*

Its Balm-like Leaves and ſpecious large Flowers, diſtinguiſh it from the reſt. It grows wild in the hilly Woods of *Tuſcany*, &c. *Deſcription.*

Small Motherwort. Ray 3. p. 302. 8. *Cardiaca* minor *nobis* 56

Marubiaſtrum *Cardiacæ* folio *Bocc.* Muſ. Tab. 98. *Marubiaſtrum* anguſto *Cardiacæ* folio viridi *Boc.* Muſ. p. 136. *Ray* 3. p. 302. 8. *Name.*

It much reſembles our common *Motherwort*, but leſs, and with very ſmall Flowers. It grows about a Yard high. *Boccone* firſt obſerved this wild near *Florence*, and afterwards in the Garden of that Noble *Venetian* and Patron of Botany Signor *Chriſtin. Martinelli.* It now grows in *Chelſea* Garden; from Seed I received this Spring from Monſieur *Vaillant* at *Paris*. *Deſcription.*

Borrage-leav'd *African* Clary. 57

Sclarea *Africana* præcox annua *Inſt. Rei Herbariæ* 179. Sclarea *Africana* ampliſſimo folio, annua *Boerhave* p. 64. 17. *Names.*

Its Leaves like *Borrage*, lightly notcht, and one ſide larger than the other; its Stalks ſquare, rough, and hairy; the Flowers large with a blue hood, out of which comes a long ſtyle forked at the end, the lower part of the Flower whitiſh; theſe ſtand at certain diſtances 3, 4 or 5 together, ſet in a large *Husk*, which ſurround but part of the whirl; they are of a pleaſant grateful ſmell, and flouriſh from *July*, or ſooner, until the midſt of *October*. *Place.*

German *Clary*, Ray 546. 16. *Bob.* Ox. p. 395. 29.

58 *Names.* Horminum *Germanicum* humile *Park.* 56. fig. 4. *Horminum* ſylveſtre 3 *Clus* l. 4. p. 29. fig. Sylv. latifol. alterum *Clus.* Pan. 578. fig. *Horminum* ſylveſtre latifolium *Jonſt.* 771. fig. 3. C B. *Phyt.* 452. 5. *Horminum* ſylv. latifolium verticillatum C B. 238. 5. *Gallitricho* affinis planta, *Horminum* ſylv. latifol. Clus. I. B. 3. l. 28. p. 314 fig. *Chabr.* 435. Ic. 1.

Place. The lower Leaves have often ſmall Wings, with little purple Flowers, both which are very well repreſented by *Cluſius*, and others that have coppied after his *Icon.* It grows wild in the mountainous Meadows of *Auſtria* and *Styria*, &c.

Sherard's *Aleppo* Clary.

59 *Names.* *Horminum* Lampſanæ folio ex *Aleppo.*

Its *Leaves* larger and more wing'd than the *German* Clary, the *Whirls* naked or with very ſmall Ears, purple above and green below; but what is very peculiar, they ſtand ſlanting or awry. It begins to Flower with us about *June.*

Small flower'd, *Sage* Clary.

60 *Names.* *Horminum* minus, *Salviæ* folio, fl. parvo.

Its lower *Leaves* like *Sage*, but ſomewhat larger; its Flowers ſmall, pale within, but the Hood above of a deep blue; the upper *Whirls* are guarded with round pointed Leaves, as the Garden kind; the whole Plant has no manifeſt ſmell. It Flowers in *Auguſt* and *September.* *Diſtinction.* Whether this Herb be deſcribed by any Author I am not certain. The 3d ſort of *Cluſius* his 2d *Horminum*, figured in his *Stirpium* Pannon. *Hiſtor.* p. 582. would very well reſemble it, were its lower Leaves finely ſerrated, inſtead of being waved. This Plant has been an old Inhabitant in *Gardens*, for I find a Specimen of it in the 1ſt Vol. p. 116. pl. 43. of Archbiſhop *Sandcroft's* Collection of *Padua* Plants, which I gueſs to be made about *A. D.* 1650. It is alſo in Mr *George London*

don his *Hortus Siccus* p. 15. (which he compoſed in Dr *Moriſſons* time) under the Title of *Stachys annua minima*, where its Flowers are well expanded. 31

Yellow *Clary* Ray 647. 24. H. Ox. p. 394. 18. 61

Horminum luteum glutinoſum C B. 238. 4. Phyt. 452. 4. *Horminum* luteum *ſive* Colus Jovis *Park.* 58. fig. 12. *Horminum* ſylv. 2. *Clus.* l. 4. p. 29. fig. opt. *Colus Jovis* Ger. 627. fig. 3. *Jonſt.* 769. fig. 4. *Lob.* Ic. 557. Belg. 659. Obſ. 301. *Galeopſis* ſpecies lutea viſcida odorata nemorenſis *Chabr.* 435. Ic. 4. I. B. 3. l. 28. p. 314. fig. *Galeopſis* lutea *Dal.* Lugd. 1248 fig. *Orvala* 3 Dod. 295. fig. *Salvia* mont. maxima, folio *Hormini*, fl. flaveſcente E. B. 149. *Inſt.* 180. *Names.*

Its yellow Flowers and clammy *husks*, diſtinguiſh it from others. It grows on the *Alps* in *Italy*, and about *Trent*, for which reaſon its call'd by ſome *Horminum Tridentinum*. *Place.*

Turkey *Bawm*, Ray 570. 2. 62

Meliſſa *Turcica* Ger. 558. fig. 2. *Jonſt.* 689. fig. 2. Tab. 355. Ic. 1. Hiſt. 2. p. 70. fig. Meliſſa *Turcica* multis dicta I. B. 3. l. 28. p. 234. fig. Meliſſa *Turcica* fl. cæruleo *Park.* 41. fig. 2. *Meliſſa* peregrina folio oblongo C B. 229. 2. peregr. *Turcica* dicta C B. Phyt. 434. 2. *Meliſſa* peregrina ſive *Moldavica* fl. purpureo *Chabr.* 417. Ic. 4. Meliſſophyllon *Turcicum* fl. purpureo *Lob.* Ic. 515. 2. *Ad.* 220. fig. Belg. 610. fig. *Names.*

This is of a delightful ſmell, and much preferable to our common Garden *Baulm.* Its ſaid to be firſt brought into our Gardens from *Moldavia*. *Place.*

Curl'd *Sage*, Ray 510 5. 63

Salvia folio ſerrato C B. prodr. 113. 1. *Salvia* latifolia ſerrata C B. pin. 237. 6. *Salvia* ſerrata cripa I. B. 3 l. 28. p. 305. fig. *Salvia* folio lato ſerrato criſpo *Chabr.* 432. Ic. 4. *Salvira* major criſpa, folio ſubrotundo *Bob.* H. Ox. 339. 7. Sect. 11. Tab. 15. fig. *Salvia* max. ſive latifol. *Park.* 49. 2. *Names.*

Its broad and curl'd Leaves diſtinguiſh it from others. I find this *Sage* has been long nurſed in our Gardens, ſince *Place.*

Caſpar Bauhine, that great Botaniſt, had his firſt knowledge of it from Dr. *James Cargille*, a *Scotch* Phyſician.

Smooth pale flowered *Ironwort*, Ray 566. 15.

64 *Sideritis* latifolia glabra Jonſt. 699. fig. 6. *Sideritis* arvenſis latifolia glabra C B. 233. 1. *Park.* 587. 14. *Sideritis* arvenſis glabra fl. pallido C B. *Phyt.* 441. 6. *Sideritis* glabra arvenſis I. B. 3. l. 30. p. 427. fig. *Chabr.* 473. Ic. 1. *Betonica* arvenſis annua, fl. albo flaveſcente *Inſt.* 203. Alyſſum *Germanicum* Ger. 379. fig. 2. *Alyſſum* majus *Tab.* Icon. 541. 2. *Hiſt.* Vol. 2: p. 243. fig. opt.

Names.

Place. The Figures in theſe two laſt Authors very well reſemble this Plant, which differs much from ours, which grows amongſt the Corn in *Yorkſhire*, as you may ſee by the Figure I have given of it in the *Icons* to Mr *Ray's Engliſh* Plants, Tab. 33. Fig. 10. It grows wild in *Germany*, and ſome other Places of *Italy*.

Party-flowered *Ironwort*.

65 *Sideritis* fl parvo vario, calycibus acutis.

Names.

Fabius Columna his Figure, the beſt agrees with this Plant of any I have yet ſeen, and is a variety of it, if not the ſame. I expect Plants and Seed of it from *Italy*, and then ſhall be better able to judge.

SECT. X. *Plants* with *Bur* and *Star* Heads.

66 Small hairy *Mallow*, Ray 605. 4.

Names.

Alcea hirſuta C B. 317. 8. Phyt. 634. 9. *Alcea* minor villoſa *Park.* 301. 4. *Alcea* villoſa I. B. 2. l. 4. p. 1067. fig. *Alcea* villoſa *Dalech.* Lugd. 594. fig. *Orig.*

This Plant grows about *Montpelier*, from whence Dr. *Niſſole*, a very curious Botaniſt, ſent me the firſt Specimens of it. Mr *Ray* has alſo obſerved it in the Hedges about *Geneva*.

Star Mallow, Ray 598. 3.

67 *Malva* folio vario C B. *prodr.* 137. 2. fig. *Malva* ſtellata *Chabr.* 298. Ic. 3. I. B. 2. l. 23. p. 950. fig. opt.

Names.

Its lower Leaves are round, but thoſe on the Stalks vary much; ſome trifid, others with more points, both acute

acute and blunt; the Flowers pretty large, purpliſh, and with bifid petals. I obſerved this with Mr *Charles Dubois* at *Mitcham*, flowering in *June* and *July*.

Gooſeberry *Cape Mallow*. 68

Malva *Africana* fruteſcens, fol. *Groſſulariæ*, fl. rubro *Boerhave* p. 114. pl. 25. *Names.*

A tall ſtrait ſhrubby Plant about a Yard high, with woody Stalks and ſmall Goosberry-like Leaves, bearing towards the top little fleſh coloured Flowers I obſerv'd this in *Chelſea Garden* flowering in *Auguſt*. *Deſcription.*

Upright *Shrub Strawberry*, Ray 610. c. 13.

Fragaria ſterilis *Alpina* cauleſcens *Hort.* Reg. Paris. *Fragaria* Pentaphylli fructu *Hort. Bleſ.* 265. deſcr. Pentaphylloides *Fragariæ* folio *Hort. Bleſ.* 154. Bot. *Monſpel.* app. *Pentaphylloides* erectum *Fragariæ* folio *Moris.* H. Ox. Sect. 2. Tab. 20. Fig. opt. *Pentaphylloides* majus erectum fl. luteo, folijs ternis *Fragariæ* inſtar hirſutis *Moris.* H. Oxon. p. 193. 2. *Trifolium Fragariæ* folijs, luteo flore *Berardi* Joncq. 69 *Names.*

The lower Leaves of this Shrub very much reſemble thoſe of the wild Strawberry, but its woody Stalks and yellow Flowers diſcover it to be a different Plant. Its ſaid to be a Native of *Canada* or *Virginia*. *Places.*

Great *Upright Cinquefoil*, Ray 613. 8.

Quinquefolium rectum luteum C B. 325. 2. Phyt. 651. 8. *Quinquefolium* vulg. *Ger.* 836. fig. 2. *Quinquefolium* alterum vulg. *Dod.* 116. fig. *Quinquefolium* rectum majus *Chabr.* 170. fig. 3. I. B 2. l. 17. p. 397. fig. *Pentaphyllum* majus erectum *Park.* 400. fig. 1. *Quinquefolium*, Pentaphyllum vulg. *Lob.* Ic. 689. 2. Belg. 838. Obſ. 393. *Quinquefolium* majus 1. Tab. Hiſt. 435. Fig. opt. *Theophraſti* majus *Ejuſd.* Icon. p. 119. fig. 2. 70 *Names.*

This is a ſpecious upright Plant, with 5 or 7 finger'd Leaves deeply cut and hairy; its Flowers like the common. It grows wild in *Germany* and about *Montpellier*; as alſo in *Catalonia*, from whence Dr. *Salvadore* ſent it me. *Places.*

Upright

71 *Upright Cinquefoil*, with pale cordated Flowers, R. 613. 13.
Names. *Pentaphyllum* ſeu *Heptaphyllum* albo-pallidum ſeu flore ochroleuco, petalis ſingulis cordatis *Mor.* H. Ox. 188. 3. *Quinquefolium* minus flore pallidè luteo *Inſt.* 297.

This differs from the *common upright*, in being lower, of a paler green and more hairy, the Flowers of a Straw or Brimſtone colour, and the *Petals* or *Flower leaves* cordated. It grows wild with the common.

Winter *Wolfs-bane*, Ray 700. 2.

72 *Aconitum* hyemale *Ger.* 819. fig. opt. *Jonſt.* 968. fig.
Names. *Park.* 314. fig. 4. *Parad.* 214. 1. deſcr. & 219. fig 1. *Aconitum* luteum minus *Dod.* 440. fig. *Aconitum* unifolium luteum bulboſum C B. 183. 1. Phyt. 332. 1. *Helleborus* niger tuberoſus, *Ranunculi* folio *E. B.* 235. *Inſt.* 272. Helleborus *Ranunculoides* hyemalis, rad. tuberoſa, fl. in medio folij *Herm.* H. Leyd. 309. *Ranunculus* cum flore in medio folio, radice tuberoſa I. B. 3 l. 30. p. 414. Fig.

This pretty Plant is very common about *Bononia*, and
Places. all over *Lombardy*, flowering the beginning of *February*.

Mycones Rue Crowfoot, *Ray* 584. 3.

73 Ranunculus *Thalictri* folio minor *Park.* parad. 219. fig.
Names. 10. Ranunculus *Thalictri* folio minor, *Aſphodeli* radicibus *Park.* 336. fig. 2. & *Parad.* 218. 7. deſcr. *Oenanthe* Myconi *Lugd.* 785. fig. *Orig.* 1. B. 3. l. 27. p. 193. fig. *Oenanthe* Hiſpanica *Myconi* Chabr. 407. Ic. 6. *Oenanthe* Hederæ folijs C B. 163. 5. *Hedera* folijs junctis C B. *Phyt.* 299. 6. *Thalictrum* minus, *Aſphodeli* radice, magno flore E. B. 234. Inſt. 271. *Thalictrum* minus rad. grumoſa, fl. majoribus *Flor.* Bat.

Dr. *Mycone*, a *Spaniſh* Phyſician, firſt diſcovered this
Place. elegant Plant on the Rocks and Mountains about *Barcelona*, from whence Dr. *Salvadore*, a very curious Botaniſt of that City, hath lately ſent it me.

SECT. XI. Bacciferous *Plants*, Ray 637.

74 Virginian *Pocopoco*, Ray 662. c. 9.
Names. Amaranthus *Indorum* perpetuus baccifer. *Hort. Hermans* Joncq. 122. *Blitum* maximum, caule rubente *Virginianum* ſeu

seu Amaranthus *Americanus* baccifer *Schuyl.* H. Lugd. 16. *Blitum* Americanum *Munt.* Phyt. Cur. Fig. 112. Phytolacca *Americana* El. Bot. 249. majori fructu *Inst.* 299. *Solanum* magnum *Virginianum* rubrum *Park.* 347. fig. 8. *Solanum* racemosum *Indicum* H. Blef. 195. Vallot 167. *Solanum* racemosum *Americanum* Ray 662. c. 9. *Pluk.* Tab. 225. fig. 4. *Solanum* racemosum tinctorium *Americanum* fol. & sem. *Amaranthi* Herm. H. *Leyd.* 574.

See its *Virtues* in the *Memoirs* for the *Curious*, Vol. 3. p. 133. 3. *Place.*

Narrow *Horse-tongue*, Ray 663. 4.

Hippoglossum folijs angustissimis, baccis ex oblongis petiolis in extrema ramulorum dependentibus *Breyn.* Pr. 1. *Lauro-laxa* angustifolia ramosa in summitate caulium frugifera *Alm. Bot.* 109: Laurus *Alexandrina* ramosa, fructu é summitate caulium prodeunte *Vallot* 102. H. Leyd. 679. desc. & 81. fig. opt. *Laurus* Alex. fructu longis pediculis, caulibus alligato H. *Blæs.* 279. descr. *Ruscus* anguſtifol. fructu summis ramulis innascente *El. Bot.* 70. *Inst.* 79. 75 *Names.*

The first knowledge of this Plant was from the Royal Garden at *Paris*, where Mr *Ray* says he saw it. *Character.*

Cape *Horse-tongue*, Ray 3. app. 246.

Laurus Alexandrina *Capensis*, ramosissima, *Ruscı* folijs Hort. nost. Sicc. Ray App. 3. p. 246. 76 *Names.*

This elegant Plant flowered some Years since with the Dutchess of *Beaufort* at *Badmington*, from whence she sent me Specimens with their Roots, which were globular and transparent. *Place.*

Palma *Horse-tongue*, Ray 3. p. 350. 1.

Laurus Alexandrina *Palmensis*, baccis é crenis foliorum prodeuntibus *Mus. nost.* 258. Lauro laxa *Epiphyllocarpos*, crenatis folijs maxima, é singulis foliorum crenis baccifera *Mantiss.* 114. 77 *Names.*

Mr *James Cunningham*, that diligent Botanist, brought me this strange Plant from the Island of *Palma*, with ripe Fruit on the edges of its Leaves, which I sent to *Hampton Court*, where it has grown ever since. *Place.*

SECT.

78 SECT. XII. *Plants* with 4 or 5 leaved *Flowers.*

Names. Narrow Silver *Penny-Creſs.*

Alyſſon anguſtifolium albidum humifuſum.

This is like the *Thlaſpi* Halimi folio ſempervirens *Herm.* H. Leyd. 595. fig. but ſpreads farther, with longer Branches and Leaves, which are whiter than the common Sea kind, Ray 829. 1.

Broad-leaved yellow *Penny-Creſs:*

79 *Names.* *Alyſſon* luteum, *Polygoni* folio.

Chabreus his Figure of *Thlaſpi montaneum luteum* p. 292. Icon. 4. ſeems very well to reſemble this Plant, whoſe *Place.* Leaves are all whole, and none either ſerrated or jagged, which he ſays often happens; yet his *Icon* expreſſes the contrary. It Flowers and Seeds with us in *July* and *Auguſt.*

Yellow *Arabian* Muſtard.

80 *Names.* *Draba* lutea *Park.* 851. fig. 7. *Draba* lutea, ſiliquis ſtrictiſſimis C B. 110. 7. *Draba* lutea, ſtrictiſſimis longiſque ſiliquis C B. phyt. 175. 5. *Draba* lutea quibuſdam I. B. 2. l. 21. p. 870. *Arabis* à quibuſdam dicta planta *Cam.* Epit. 342. fig. opt. & deſcript. *Heſperis* lutea, ſiliquis ſtrictiſſimis *El. Bot.* 190. *Inſt.* 222.

Deſcription. Its long and broad ſerrated Leaves, yellow Flowers, and ſlender Pods, diſtinguiſh it from others. It is common in *Chelſea* Garden.

White *Muſtard*, Rocket.

81 *Name.* *Eruca* alba, *Sinapi* folio.

This Plant reſembles the *Garden Rocket*, but in its Flowers, which are all white without any Veins. It Flowers and Pods from *July* till *September.*

Virginia Sciatica Creſſes, *Ray* 827. 3.

82 *Names.* *Iberis* humilior annua *Virginiana* ramoſior *Moris.* H. Ox. 311. 2. Sect. 3 Tab. 21. fig. opt. & *Orig.* Thlaſpi *Virginianum*, folio *Iberidis* amplioribus & ſerratis *El. Bot.* 182. *Inſt.* 213.

This

This differs from the commou *Sciatica Creſs*, Ray 827. 1. in having broader, green, deeper cut *Leaves*; its Stalks more branched and larger Flowers and Cods.

Small, Purple *Stock*. 83

Leucoium minus viride, fl. purpureo. an *Leucoium* marinum parvum, folio virenti craſſiuſculo I. B. 2. l. 21. p. 877. fig. *Ray* 793. 1. *Names.*

The lower Leaves broad and lightly notcht; its Flowers ſmall and purple. In Gardens its makes a pretty edging, flowering moſt part of the Summer. *Place.*

Broad *Garden-Creſs*. *Mo*ris. H. Oxon. 301. 2. 84

Naſturtium Tab. *Hiſt.* Vol. 2. p. 163. fig. *Chabr.* 289. Ic. 3. C B. in *Matth.* 426. fig. 4. opt. & Orig. *Naſturtium* latifol. *Dioſcorideum* I. B. 2. l. 22. p. 913. fig. Naſturtium *Hiſpanicum* Ger. 194. fig. 2. *Jonſt.* 251. fig. 3. *Tab.* 450. Ic. 2. Naſturtium *Hortenſe* latifolium C B. 103. 1. *Hiſpanicum* Park. 825. fig. 1. *Names.*

This I have met with in *Gardens* with the common.

Broad *Curl'd Creſs*. Mor. H. Ox. 301. 3. 85

Naſturtium criſpum latifolium C B. in *Matth.* 425. fig. 2. opt. & Orig. *Naſturtium* hortenſe criſpum latifolium C B. *prodr.* 44. fig. *Park.* 825. 2. *Names.*

Its *Leaves* winged, broad and waved, but not ſo much curl'd as the next.

Narrow *Curl'd Creſs*. Mor. H. Ox. 301. 4.

Naſturtium criſpum I. B. 2. l. 22. p. 913 fig. *Chabr.* 289. Ic. 2. *Naſturtium* criſpum anguſtifolium C B. in *Matth.* 426. fig. 3. opt. & *Orig.* Naſturtium *Hort.* criſpum C B. 104. 3. *Phyt.* 161. 14. Naſturtium *Hort.* criſpum anguſtifolium C B. *prodr.* 43. fig. *Park.* 825. fig. 2. 86 *Names.*

Found in ſome old Gardens.

Perſian Party-leaved *Creſs*. Ray 830. 5. 87

Naſturtium Perſicum, *Smyrnij Cretici facie*. *Names.*

Thlaſpi verum 1 *Dioſcoridis* Zanoni *Ray* 830. 5. *Thlaſpi* vero di *Dioſcoride* 1 Zan. *Hiſt. Botan.* 193. fig. opt. & *Orig.* Tab. 73. *Thlaſpi* ſpicatum *Perſicum* perfoliatum maximum,

folijs inferioribus tenuitèr inciſis *Hypecoi* modo, ſuperioribus à caule *Perfoliatæ* modo penetratis *Mor.* H. Ox. 294. 17. Naſturtium *Orientale*, folijs inferioribus *Millefolium*, ſuperioribus *Perfoliatam* referentibus *E. B.* 183. *Inſt.* 214.

This is a very elegant Plant, its lower *Leaves* being deeply cut, finer than the common *Garden Creſs*, but thoſe which ſaddle the Stalks are round like the *Candy Alexanders* Raij 436. 2.

88 Low *Mecklin* Creſs.

Names. *Thlaſpi* procumbens, *Mechinienſis* facie.

It grows much larger than the common *Mecklin*, more branched and ſupine; its Flowers white, *Cods* oval and apiculated at the Point.

SECT. XIII. *Bell-flowered* and *Pentapetaloſe* Plants.

89 *Boccones* ſmall-flowered *Sicilian* Bindweed, *Ray* 727. 15.

Names. Convolvulus *Siculus* minor, flore parvo auriculato *Bocc.* 89. Tab. 48. Convolvulus *Siculus*, flore cæruleo minimus *Munt.* Phyt. *Tab.* 138. p. 13. Convolvulus *Siculus* annuus cæruleus minimus, capſulâ floris binis foliolis cincta *Mor.* H. Oxon. 36. 4. Tab. 7. fig. 4. Convolvulus *Siculus* flore cæruleo minimo *Robert.* Icon. *Convolvulus* minimus *Africanus* Park. 171. 6. *Ray* 730. 30.

Boel firſt diſcovered this Plant on the Coaſt of *Barbary*,

Place. and communicated it to Mr *Parkinſon*, long before *Boccone* obſerved it in *Sicily*; which laſt Author has given a very accurate Figure of it, ſo that I choſe to retain it by his Name.

Spaniſh blue *Bindweed*, Ray 727. 19.

90 Convolvulus *Hiſpanicus* Munting. *Phyt.* Tab. 136. fig.

Names. p. 503. *Convolvulus* minor cæruleus *Hiſpanicus* Park. 171. 7. *Parad.* 358. 4: fig 3. p. 361. *Convolvulus* peregrinus cæruleus, folio oblongo C B. 295. 7. *Prodr.* 134. 2. I. B. 2. l. 15. p. 166. *Convolvulus* cærul. minor fol. oblongo *Jonſt.* 865. fig. 3. Convolvulus *Luſitanicus*, flore Cyaneo *Broſſ.* H. Reg. Paris. *Convolvulus* peregrinus cæruleus fol. oblongo, fl. perameno, triplici colore inſignito *Mor* H. Ox. 17. 4. Tab. 1 fig. 4. *Convolvulus* exoticus *Aldini*.

This

This elegant Plant grows in divers parts of *Spain* and *Portugal*, as alſo about *Tangier*. Mr *Ray* has obſerved it in *Sicily*. *Place.*

Scarlet *Carolina* Bindweed. 91

Convolvulus *Carolinianus* fl. minore ſanguineo *Muſ. Petiver* 901. Quamoclit *Americana* Hederæ folio *Commel.* Prælud. 2. p. 21. fig. opt. *Names.*

Its *Ivy* Leaves and ſmall tubuloſe Scarlet *Flowers*, diſtinguiſh it from others. It firſt flowered with Mr *Darby* at *Hoxton*, and ſince in *Chelſea* Garden. *Places.*

Round *Purple* Bindweed, *Ray* 727. 18. 92

Convolvulus purpureus folio rotundo C B. *prodr.* 134. 1. *Convolvulus* purp. fol. ſubrotundo C B. 295. 6. *Convolvulus* cæruleus major rotundifoliùs *Park.* Parad. 358. 1. maj. cæruleus *Ejuſd.* 361. fig. 1. *Convolvulus* cærul. folio rotundo *Jonſt.* 864. fig. 2. Campanula *Indica* Chabr. 122. Ic. 4. I. B. 2. l. 15. p. 165. fig. *bonâ*. *Campanula* exotica *Aldini* Hort. *Farnes.* 89. *Names.*

Its round cordated *Leaves*, and purple Flowers, diſtinguiſh it from the common. Its a pretty Ornament in our curious *Gardens*.

Round *White* Bindweed. 93

Convolvulus *Indicus* fl. albo *Vallot.* 57. H. Leyd. 182. *Names.*

Round *Bluſh* Bindweed. 94

Convolvulus *Indicus* flore albo-purpuraſcente, ſemine albo H. Reg. *Monſpel.*

Its Bluſh *Flowers* and white *Seed*, differ it from the others.

Small *Aleppo* Piſs-weed.

Androſace *Alepenſis* parva: 95 *Names.*

From a ſmall ſingle thready Root, grow 6 or 7 light notch'd *Leaves*, very like our common *Whitlow graſs*, and not bigger, nor the Plant taller: with a tuff of ſtellated leavey Flowers, like the *Androſace Matthioli*, but in all Parts much leſs. C. B. in *prodr.* p. 118. deſcribes 2 ſmall ſorts of this Plant, but neither ſeem fully to agree with *Character.*

this. The Reverend Mr *William Stoneſtreet* (raiſed this elegant Plant in Mr *Fairchilds* Garden at *Hoxton*) to whom I am obliged for a Specimen of it.

96 *Names.*

Centfoil *Orientall* Mothmullen.

Blattaria Orientalis *Argemone* folio. *Verbaſcum* Orientale *Sophiæ* folio *Coral.* 8.

Its deep cut Leaves that grow next the Root, with narrow ones at the coming forth of the Flowers, which are yellow, diſtinguiſh it from all others. A large Specimen of this elegant Plant I lately received from Dr. *Vaillant* at *Paris*; I alſo remember the Dutcheſs of *Beaufort* to have formerly ſhewn it me amongſt her curious Collection of dry Plants raiſed at *Badmington*. It flowered this laſt Summer with Mr *Charles du Bois* at *Mitcham*.

Place.

97 *Names.*

Small clammy *Rhodes* Campion.

Lychnis viſcoſa aizoides flore minimo è *Rhodes* Muſ. noſt. 267. *Lychnis* aizoides glaucophyllos ad nodos caulium, floſculis amænè purpureis *Rhodienſis* Pluk. *Mantiſs.* 121. pl. 4. Lychnis *Balearica* viſcoſa ſaxatilis, tereti craſſo folio *Salvadore*.

Diſtinction.

This is a trayling Plant, with thick oppoſite *Leaves*, not unlike our *Portulaca aq. noſtras*; it branches very much, and towards the top come ſmall fleſh coloured Flowers, ſtanding on half Inch Pedicles. The whole Plant is clammy, and its branches tangle much. Mr. *Samuel Daniel*, Surgeon, firſt brought me this Plant from *Rhodes*, and the Seeds of it I communicated to Mr *Charles du Bois*, with whom it flowered *A. D.* 1697. and this laſt Summer again at *Chelſea*. Dr. *Salvadore* has alſo ſent it me from *Port Mahone* in *Minorca*, one of the *Balearick* Iſles.

98

White *Campion*, with whole Petals.

Lychnis ſylv. alba, petalis integris.

Very like the common *white Campion*, but it Flowers whole.

99 *Names.*

White *Campion*, with ſhort furrowed husks.

Lychnis fl. albo ſeſſeli, *calyce* ſtriato brevi.

Its

Its *Leaves* not unlike the common *Campions*, with ſmall white deep cut *Flowers*, in a rough furrowed Green ſhort *husk* adhering to the Stalk.

Candy *Campion* with purpliſh *Husks*. 100

Lychnis *Cretica* parvo flore, *calyce* ſtriato purpuraſcente *Coral.* 24. *Names.*

This comes next the *Bladder Campion* kind, with ſmall Flowers, and ſmooth purpliſh *Husks*.

Hermans *Cape* ſmooth Cockle.

Pſeudo-Melanthium *Capenſe* glabrum minus. *Lychnis* Pſeudo-melanthio ſimilis, *Africana* glabra, anguſtifolia *Herm.* H. Leyd. 393. fig. *Lychnis* ſegetum *Nigellaſtrum* minus glabrum dicta, fl. eleganter rubello *Mor.* H. Ox. p. 534. 32. *Lychnis* minor ſeu *Nigellaſtrum* minus fl. elegan- ter rubello *Mor.* Ox. Sect. v. Tab. 22. fig. ult. 101 *Names.*

This differs from our *Corn Cockle*, in having a leſs and paler naked Flower, with deep furrowed *Husks* and ſmooth *Leaves*. Dr. *Herman* firſt obſerved this at the *Cape of Good Hope*, and ſent it to Dr. *Moriſſon*, whoſe Figure very well agrees with it. *Places.*

Smyrna Purple ſpiked *Willowherb*.

Lyſimachia *Orientalis* anguſtifolia, flore purpureo *Commel.* Prælud. *Botan.* 2. p. 33. fig. opt. *Luteolæ* folio & facie, fl. purpuraſcente, capſulâ rotundâ in ſpinulam abeunte *Sherard*. 102 *Names.*

Under this laſt Title Dr. *Sherard* ſome Years ſince ſent me a Native Specimen of this from *Smyrna*, whoſe Root and Flowers were not a foot high; but in our Gardens it grows near as tall as a Man. Its lower Leaves are broad and pointed, but thoſe on the Stalks narrow; the Flowers purple, and are thick ſet in long Spikes, with round pointed *Capſules*. *Deſcription.*

Cornutus his *Indian* Night ſmelling *Cranesbil*, Ray 1057. 11. *Geranium* triſte *Cornuti* 110. fig. *Mor.* H. Ox. 517. 26. Tab. 16. fig. *Geranium* triſte ſive *Indicum*, noctu olens *Park.* 710. fig. Geranium *Indicum* nocte odoratum *Munt.* Phyt. fig. 166. opt. p. 603. 103 *Names.*

Renatus

Renatus Morinus, a *French* Floweriſt, firſt communicated this to *Cornutus*, who ſays it was brought from the *Indies*, but I rather believe it from the *Cape of Good Hope* in their Voyage Home, there being not one of this Species in all the 12 Volumes of the *Hortus Malabaricus*; but many from that fertile Promontory, and particularly of this kind and make, as the following.

Hoary *Chamomill* Cape *Cranesbil.*

104 *Names.* Geranium *Capenſe* folio *Chamomeli* villoſo. an *Geranium* noctu olens *Æthiopicum*, rad. tuberoſa, fol. anguſtioribus *Breyn.* Cent. fig. 58. p. 127.

The Leaves of this ſeem much finer than thoſe in *Breynius* his Figure.

Cape Coriander *Cranesbil* with large *Flowers.*

105 *Names.* *Geranium* Capenſe *Coriandri* folio, fl. magno carneo. *an* Geranium *Æthiop.* 3. fl. magno ſtriato *Breyn.* Cent. fig. 1. p. 129. Ger. *Indicum* tenuifolium *Munt.* Phyt. 604. fig. 168.

Its Flowers reſemble the Figure in *Breynius*, but the Leaves are finer cut.

Naked-flowered, *Columbine* Gith. *Ray* 1070. 3.

106 *Name.* *Nigella* arvenſis fl. cæruleſcente nudo. *Nigella* arvenſis C B. *Phyt.* 250. 5. *Park.* 1376. 3. *Nigella* arvenſis cornuta C B. 145. 1. *Melanthium* ſylveſtre *Dod.* 302. fig. 2. *Jonſt.* 1084. fig. 2. C B. in *Matth.* 580. fig. 3. *Melanthium* ſylv. ſive arvenſe *Chabr.* 379. Ic. 3. & I. B. 3. l. 26. p. 205. *fig.* falſâ *Melanthium* ſylv. alterum, capitulis reflexis *Aquilegiæ* Lob. Ic. 742. 1. *Belg.* 905. *Obſ.* 428.

Place. Known from the reſt, in having *blewiſh* naked *Flowers*, and its *Seed Veſſels* like the *Columbine.* It grows wild amongſt Corn in *Germany*, *Italy* and *Narbone.*

Single, *Bearded* or *Damask* Gith *Ray* 1070. 1.

107 *Names.* *Nigella* anguſtifolia barbata, fl. ſimplici. *Nigella* fl majore ſimplici C B. *Phyt.* 250. 3. *Nigella* auguſtifoliâ, flore majore ſimplici cæruleo C B. pin. 145. 3. *Melanth.* Gith, *Nigella* Chabr. 378. Ic. 6. *Melanthium* capite & flore majore I. B. 3. l. 26. p. 207. fig. Melanthium *Damaſcenum* Dod.

Dod. 304. fig. *Jonſt.* 1084. fig. 3. *Melanthium* ſylv. C B. in *Matth.* 580. fig. 2. Lob. Ic. 741. 2. *Belg.* 904. *Obſ.* 428.

This is known by its ſingle Flowers, ſet in a Net of bearded Leaves.

Double flowered or *Damask* Gith, *Ray* 1070. 1. 108

Nigella fl. majore pleno C B. *Phyt.* 251. 4. *Nigella* fl. majore pleno cæruleo C B. p n. 165. 4. *Nigella* fl. albo multiplici *Jonſt.* 1085. fig. 5. *Melanthium* capite minore fl. multiplici I. B. 3. l. 26. p. 209. fig. *Chabr.* 379. Icon. 2. *Melanth.* Damaſcenum fl. pleno *Clus* l. 4. 208. fig. *Orig.* opt. *Names.*

Its double, bearded *Flowers* diſtinguiſh it from the other.

Mycones *Bears-Ear*, Ray 1084. 10. Mor. H. Cx. 558. 5.

Auricula Urſi *Borraginoides* Munt. *Phyt.* curioſa fig. elegantiſſimâ 113. p. 382. *Auricula Urſi* fl. cæruleo, folio Borraginis *Park.* parad. 236. 9. fl. & folio Borraginis *Ejuſd.* 237. fig. 3. *Auricula Urſi* Myconi *Lugd.* 831. fig. Orig. *Auricula Urſi* Miconi piloſa cærulea *Chabr.* 493. Ic. 1. I. B. 3. p. 869. fig. Sanicula *Alpina* villoſa, folijs Borraginis C B. 243. 4. Sanicula *Alpina* villoſa cærulea C B. *Phyt.* 463. 7. *Verbaſcum* humile *Alpinum* villoſum *Borraginis* flore & folio *Herm.* H. Leyd. 619. *Inſtit.* 147. 109 *Names.*

This is an elegant and ſingular Plant, with very hairy Leaves, and purple *Borrage*-like Flowers. It was firſt diſcovered by Dr. *Mycone*, a *Spaniſh* Phyſician, on and near the *Pyrenees*, in ſhady moiſt mountainous Places, who ſays, a diſtill'd Water of it is very efficacious in breaking the *Stone* in the Kidneys or Bladder, and that the *Spaniards* drink the ſame againſt *Coughs*, for which reaſon they call it *Yerva Tuſſera*, and alſo *Peluda* from the plenty of its Leaves. *Deſcription.* *Place.*

SECT. XIV. *Leguminoſe* or *Pea-bloom* Plants, *Ray* 883.

Foxtail *Cammock*, Ray 3. p. 471. 32.

Anonis purpurea non ſpinoſa *Alopecuroides.* Anonis *ſpicata* five *Alopecuroides* non ſpinoſa *Hoffman* Cat. Altorf. *an* Anonis *Sicula* Alopecuroides *Inſtit.* Rei Herb. 408. 110 *Names.*

Its

Description. Its top Flowers in a thick long leavy *ſoft ſpike*, reſembling a *Foxes Tail*; its Leaves generally ſingle, very broad and ſerrated, with a large forked welt which ſaddles the Stalk; in the Spike they are much leſs. It Flowers in *July*.

111 Sicilian *Birdsfoot* Cammock, *Ray* 3. p. 4 467. 21.

Names. Anonis *Sicula* ſiliquis articulatis. *Anonis* pulchra viſu, folio *Ciceris*, Ornithopodij ſiliquis annuentibus H. *Cathol.* 18. Fænum Græcum *Siculum* Siliquis *Ornithopodij* Inſt. 409.

The peculiarity of this elegant Plant is, its many long knotty *Pods*, with about 8 joints in each, ſomewhat reſembling thoſe of *Birds foot*.

112 *Boerhave*'s double podded *Lote*.

Names. *Lotus* ſiliquis geminis peregrina *Boerhave* Ind. Hort. Leyd. 156.

Theſe *Pods* are lightly joynted like the *Birds foot Lote*, but not ſo diſtinct and rounder, rarely more than two together, and ſometimes ſingle.

113 *Camerarius* his Bladder-Lote, *Ray* 922. 4.

Names. *Anthyllis* leguminoſa veſicaria *Hiſpanica* Park. 1094. fig. 3. *Lotus* pentaphyllos veſicaria C B. 332. 4. *Trifolium* Halicacabum *Cam.* Hort. p. 171. fig. 47. opt. & *Orig.* Trifolium *Halicacabum* ſive *Veſicarium* Chabr. 160. Ic. 2. I. B. 2. l. 17. p. 361. fig. *Trifolium* Veſicarium *Alpin.* Exot. 274. fig. *Vulneraria* pentaphyllos E. B. 311. *Inſt.* 391.

Mr *Ray* has obſerved this Plant in *Sicily* and *Italy*, and Dr. *Salvadore* about *Barcelona*.

114 Italian *Melilot*, Ray 951. 4.

Names. Melilotus *Italica* folliculis rotundis C B. 331. 4. *Melilotus* lutea *Italica* Cam. *Hort.* 99 fig. 29. opt. & Orig. *Melilotus* magno ſemine, rotundo rugoſo I. B. 2. l. 17. p. 371. fig. Chabr. 159. 1. *Melilotus* lutea, magno ſeminis pericarpio rugoſo albo *Mor.* Ox. Sect. 2. Tab. 16. fig. p. 161. 4. Melilotus *Italica* & *Patavina* Ger. 1033. fig. 2. opt. Under this laſt Title *Johnſon* deſcribes it, p. 1204. 2. and *Park.* 719. 3. but their *Figures* are of another Plant.

Trifolium

Trifolium Italicum folliculis rotundis C B. *Phyt.* 667. 54:
Its ſpecious broad Leaves, and large round rugged *Seed-Veſſels*, differ it from others.

Meſſina *Melilot* Ray 952. 11. 115

Melilotus *Meſſanenſis* procumbens, folliculis rugoſis ſub-longis, ſpicis florum brevioribus, *Ray* H. Plant 952. 11. *Names.*

Like the *Italian Melilot* in its rugged Pods, but they are ſomewhat longer, and the Leaves narrower, and it grows procumbent. Mr *Ray* firſt obſerv'd this in a moiſt place near the *Phare* of *Meſſina*. *Place.*

Candy *ſpangled Melilot*, 956. 5. 116

Melilotus *Cretica*, ſiliquis latis compreſſis. *Trifolium* peltatum *Creticum* C B. phyt. 660. 27. deſcr. & Prodr. 142. 14. deſcr. & fig. Orig. C B. pin. 329. 1. I. B. 2. l. 17. p. 381. fig. *Trifolium* peltatum *Creticum*, floſculis pallidè luteolis *Chabr.* 164. Ic. 3. *Trifolium* odoratum peltatum *Creticum* Park. 1113. fig. 2. *Names.*

Its flat *Pods* diſtinguiſh it from all others; theſe are eaten whilſt green, being very ſweet, but very bitter when dry. The common People in *Candy* call this Plant *Maſſourias*. *Place.*

Manured White *Chichling*, Ray 896. 13. 117

Lathyrus ſativus, flore & fructu albo C B. 343. 1. *Lathyrus* anguloſo ſemine *Chabr.* 146. Ic. 1. I. B. 2. l 17. p. 306. fig. *Lathyrus* ſive *Cicercula* Dod. 353. fig. *Lathyrus* anguſtifolius *Jonſt.* 1229. fig. 2. *Lathyrus* æſtivus edulis *Bæticus*, fl. albo *Boelij* Jonſt. 1628. *Cicercula* ſive *Lathyrus* ſativus fl. albo *Park.* 1064. 1. *Names.*

This *Pulſe* is ſown in *Germany* and about *Geneva* plentifully. *Place.*

Yellow *Batick* Chichling. 118

Lathyrus æſtivus fl. luteo *Jonſt.* app. 1628. Lathyrus *Bæticus* fl. luteo *Park.* 1064. 8. *Names.*

Its yellow *Flowers* veined with purple, differ it from others. It grows about *Cales*, and in divers Parts of *Spain*.

Spaniſh *Chichling* with chain Pods.

119 *Names.* Lathyrus *Viciaoides* flore vexillo phæniceo, folijs labialibus ſubalbeſcentibus, ſiliquis *Orobi* Mor. H. Ox. 55. 2. Lathyrus *Bæticus* elegans ſiliquis *Orobi* Park. 1063. fig. 8. *Mor.* Ox. Sect. 2. Tab. 3. fig. 2. Clymenum *Hiſpanicum*, flore vario, ſiliquâ articulatâ *E. B.* 315. *Inſt.* 396.

Deſcription. Its whitiſh Flowers with a red tongue, diſtinguiſh it from the laſt, and are found in the ſame places, and alſo about *Barcelona* by Dr. *Salvadore.*

Spaniſh *Chichling* with plain Pods.

120 *Names.* *Lathyrus* Viciaoides, vexillo *rubro*, labialibus petalis roſtrum ambientibus *cæruleis*, ſiliquâ planâ *Mor.* H. Ox. 55. *Lathyrus* æſtivus dumetorum *Bæticus* Boelij *Jonſt.* 1629. Clymenum *Hiſpanicum*, flore vario, ſiliquâ planâ E. B. 315. Inſt. 396.

Deſcription. The *Flower-lips* of this are blue, and the *Pods* plain, which differs it from the laſt. It grows in *Spain* and about *Tangier.*

Hatchet podded *Chichling.*

121 *Names:* *Lathyrus* æſtivus *Bæticus*, fl. cæruleo *Boelij* Jonſt. 1628. *Lathyrus* annuus fl. cæruleo, ſiliquâ *Ochri* Herm. H. Leyd. 357. *Lathyrus* anguſtifolius ſiliquâ alatâ, vexillo cæruleo, alis variegatis *Boerhave* H. Leyd. 159. 12.

Deſcription. Its ſtriped wings, blue tongue, and ſhort broad *Ochre* like *Pod*, diſtinguiſh it from the reſt.

Large Sweet-flowred, *Sicilian* Chichling, *Ray* 3. p. 447. 13.

122 *Names.* Lathyrus *Siculus* flore odorato magno *Boer.* H. Leyd. 159. 4. *Lathyrus* major è *Silicia*, fl. ampliſſimo odorato, vexillo rubro, labialibus petalis roſtrum ambientibus cæruleis, ſiliquâ hirſutâ planâ *Hort. Uvedalenſis* Pluk. Mant. 114. *Lathyrus* platyphyllos hirſutus mollis, magno & peræmeno fl. odoro purpureo H. *Cathol.* 107. Ray 3. p. 447. 13.

Place. This elegant ſweet flowered Plant I firſt obſerved with Dr. *Pluknet* in Dr. *Uvedales* moſt curious Garden at *Enfield*, and ſince at *Chelſea*, and elſewhere.

Tangier

Tangier *Chichling*, Ray 899. 19. 123

Lathyrus *Tingitanus* ſiliquis *Orobi*, fl. amplo ruberrimo *Mor.* H. Ox. 55. 1. Tab. 3. fig. Lathyrus *Tingitanus* fl. amplo ruberrimo *Ray* H. Plant 899. 19. *Names.*

This is known by its large deep red *Flowers* and joynted *Pods* Dr. *Alexander Balam* firſt ſent the Seed of this elegant Plant from *Tangier.*

Purple *Chichling* with hairy Pods. 124

Lathyrus purpureo flore, ſiliquis hirſutis *Moris.* H. Ox. p. 53. 8. *Names.*

It differs nothing from the yellow, but in having purple Flowers.

Winged *Birds Peaſe* or *Ochre*, Ray 899. cap. 6. 125

Ochrus ſive *Ervilia* Lob. Icon. 68. 1. *Belg.* 2. p. 79. *Obſ.* 516. Jonſt. 1249. fig. 1. *Ochrus* ſive *Ervilia* flore & fructu albo *Park.* 1066. fig. *Ochrus* fol. integro, capreolos emittente, ſem. ſub-luteo C B. 343. *Ervilia* ſylveſtris Dod. 522. fig. *Lathyrus* folio integro producente bina foliola capreolos emittentia *Moris.* H. Ox. 58. 8. Tab. 3. fig. 8. *Lathyri* ſpecies quæ *Ervilia* ſylveſtris *Chabr.* 145. Ic. 6. I. B. 2. l. 17. p. 305. fig. *Papulles* Cretenſibus *Hon. Belli.* *Names.*

Mr *Ray* has obſerved this elegant Plant amongſt the Corn at *Leghorn.* *Places.*

Creſted *Oriental Cocks-Comb* with pointed Leaves. 126

Onobrychis *Orient.* criſtata, folijs acutis. *Names.*

The Leaves ſharp-pointed like the common; its Flowers ſmall and purple, with a long bearded *calyx*, reaching to the edges of the *Fruit*, which is elegantly *creſted*, and might therefore more properly give the Denomination to this *Tribe* than the common. It *Flowers* and *Seeds* in *July*, &c. *Deſcription.*

Creſted *Aleppo Cocks-Comb*, with blunt Leaves. 127

Onobrychis *Alepenſis* criſtata, folijs obtuſis. *Names.*

This chiefly differs from the *Creſted* Oriental *Cocks-Comb* in the bluntneſs of its Leaves, which are cordated at the tips like ſome *Vetches*, and its *Fruit* more irregu-

larly creſted and ſerrated. The Reverend Mr *Stoneſtreet* gave me a fair Specimen of this Plant, which he raiſed from *Seed* he receiv'd from *Aleppo*.

128 Prickley Catterpillars, *Ray* 931. 2.

Names. Scorpioides *Chabr.* 284. Ic. 5. *Dod.* Lugd. 1153. Fig. Scorpioides *Bupleuri* folio C B. 287. 1. *Phyt.* 569. 1. *Lob.* Icon. 457. 1. *Belg.* 542. *Obſ.* 244. *Tab.* Icon. 873. 1. *Hiſt.* 2. p. 545. fig. Scorpioides *Bupleuri* folio minor *Park.* 1117. fig. *Scorpioides* prius Dod. 71. fig. opt. *Scorpioides* ſiliquâ campoide hiſpidâ I. B. 2. l. 21. p. 899. fig. *Scorpioides Bupleuri* folio, corniculis aſperis hirſutis minus contortis *Mor.* Oxon. p. 127. 1. Tab. 11. fig. *Clymenum* Dioſcoridis *Col.* 156. *fig.* opt.

Place. It grows wild on the Hills of *Meſſina*, and Ditches about *Montpellier*.

129 Thick, rugged *Catterpillars*, Ray 931. 3.

Names. *Scorpioides* major *Park.* parad. 340. 11. fig. 337. 12. Scorpioides *Bupleuri* folio, ſiliquâ craſſâ *Boelij* Jonſt. 1627. *Scorpioides* Bupleuri fol. major *Park.* 1117. fig. *Scorpioides* Bupleuri fol. corniculis craſſioribus & magis ſpongioſis litui inſtar contortis & in ſe convolutis *Mor.* Ox. 127. 3. Tab. 11. fig. 3. opt.

Diſtinction. This elegant variety with thick rugged *Pods*, was firſt brought into *England* about the Year 1620 by *Wm. Boel*, who was chiefly employ'd at the Charge of Mr *Parkinſon*, that indefatigable and laborious Botaniſt, to gather what *Roots* and *Seeds* he met with in *Spain* and *Barbary*.

130 Yellow *Fumitory* or *Split*, Ray 974. 3.

Names. *Fumaria* lutea C B. 143. 5. *Phyt.* 246. 5. *Ger.* 928. fig. 4. *Jonſt.* 1088. fig. 4. *Fumaria* montana *Tabern.* 34. Ic. 2. Hiſt. 104. fig. 6. *Fumaria* lutea montana *Park.* 287. fig. 4. *Lob.* Icon. 758. fig 2. *Belg.* 925. Obſ. 438. Fumaria, *Split* I. B. 3. l. 26. p. 203. fig. falſâ *Chabr.* 378. Ic. 1. *Herba Sclavonica* Venetijs. *Split* Sclavonijs.

Deſcription. This *Herb* is highly commended for its wonderful *Effects* in all *Cephalick* and *Nervous* Caſes, as alſo in *Gouty* Pains,

Pains, and opening *Obſtruſtions*. It grows in *Boſnia*, *Sclavonia* and divers Parts of *Italy*.

Pale *Tangiere* Split, *Mor.* H. Oxon. 260. 2. 131

Fumaria ſempervirens & florens *Flor. Bat.* Fumaria ſiliquoſa bivalvis, rad. fibroſâ, latifolia perennis, humilior ſine claviculis fl. albo *Mor.* H. Oxon. 260. 2. Fumaria *Tingitana*, rad. fibroſâ perennis, flore ex albo flaveſcente ſiliquis curtis *Pluk.* Tab. 90. fig. 2. *Names.*

Its glaucous Leaves and pale Flowers, differ it from the yellow *Split*. Dr. *Moriſſon* firſt raiſed this Plant of Seed ſent him by Dr. *Alexander Balam* from *Tangier*. Its ever Green, and almoſt always in Flower. *Deſcription.*

Broad-leaved *Cape* Milkwort. 132

Polygala *Africana* glabra, floris galeâ binis criſtis fimbriatis ex involucro magno dipetalo erumpente *Pluk.* Tab. 53. 2. Polygala *Africana* fruteſcens latifolia & major *Par. Bat.* prodr. *Polygala* major fruteſcens *Myrtifolia* fl. purpuraſcente *Cap. Bonæ Spei* Breyn. *Prodr.* p. 84. *Polygala* fruteſcens *Africana*, fol. *Myrti*, fl. albo, intus rubro *Boer.* 97. 7. *Names.*

This elegant Plant Flowers in *July* and *Auguſt*, as I have ſeen it in Sir *Richard Child*'s moſt curious Gardens at *Wanſtead*, under the Care of that expert Gardiner Mr *Adam Holt*. *Place.*

SECT. XV. *Miſcellany* Plants.

Virginia Ivy-Climer. *Ray* 3. Dendr. 37. 4. 133

Hedera Monophyllos, *Convolvuli* folijs *Virginiana* Pluk. Tab. 36. *fig.* 2. Hedera *Virginiana*, Clematis facie, radice flaveſcente *Herm.* H. Leyd 306. *Hedera* Monophyllos *Virginiana*, umbilicatis folijs, baccata, oſſiculo compreſſo lunato ſingulari *Mantiſſ.* Pluk. 99. *Baccifera* oſſiculo compreſſo lunato, Planta *Virginiana*, caudice lento ſcandente, folijs Hederaceis, *Naſturtij Indici* more umbilicatis *Baniſter* Cat. Inſt. *Clematis* folio Hederaceo *Virginiana* Hort. Boſian. *Clematis* Hedera folio H. *Bleſ.* 255. Convolvulus *Names.*

Hede-

Hederaceus perennis *Ejusd.* 58. Clematis *Hederacea* perennis *Virginiana*, umbilicato folio pappoſo flore *Vallot* 53.

I have lately ſeen this odd Plant in Flower, with the Biſhop of *London* at *Fulham*.

134 Virginia *Ipecacuanha*, Ray 3. p. 330. 1.

Names. *Ulmaria* major trifolia, fl. amplo pentapetalo *Virginiana* Baniſter *Pluk.* Tab. 236. 5. *Ulmaria* Virginiana trifolia, flor. candidis amplis longis & acutis *Bob.* Ox. 323. 3.

Place. I have ſeen this elegant Plant in *Flower* and *Seed* raiſed to that Perfection, by the Care of Mr *Wm. Milward*, Gardiner to the Biſhop of *London* at *Fulham*; as alſo amongſt many other rare Plants, lately ſent from *Virginia*, by that curious Perſon Mr *Mark Catesby*.

135 Star headed *Valerian*, Ray 393. 4.

Names. *Valerianella* ſem. ſtellato CB. 165. 21. *Valerianella* altera tenuifolia, ſem. *Scabioſæ* ſtellato *Col* 207. c. 75. fig. p. 209. opt. *Valeriana* pætrea *Ger.* 917. fig. 4. *Jonſt.* 1075. fig. 4. opt. *Park.* 123. fig. 8. Valerianella *Scabioſæ* ſemine, major *Luſitanica* Moris. *Umbel.* 53. Tab. 1. fig. 49. *Pſeudo-Valeriana* annua ſem. coronato major *Bob.* Oxon. 104. 29. Sect. 7. Tab. 16. fig. 3. *Phu* minus pætreum *Tab.* Hiſt. 563. fig. 2. *Icon.* 166. 1.

Place. Its grows common in *Portugal* by Field ſides, as alſo in *Italy* and about *Montpelier*. The Reverend Mr *Adam Buddle*, a curious Botaniſt, raiſed this the laſt Summer in *Grays-Inn* Garden.

136 Bladder-headed *Valerian*.

Names. Valerianella *Cretica* fructu veſicario T. *Coral.* 6. *Pſeudo-Valeriana* annua *Halepenſis* veſicaria *Bob.* H. Oxon. 104. 29. an *Valerianella* capitata *Munting.* Phyt. Tab. 223. p. 782. *Valerianella* capitata *Luſitanica* Virid. *Luſit.* & Munt. *Cult.* Plant 539.

Place. This was firſt raiſed in *England* from Seed, which Dr. *Huntington* ſent Mr *Jacob Bobart* from *Aleppo*. I have alſo obſerved it in our Phyſick Garden at *Chelſea*.

Canary

Canary Simpla-nobla.

Valerianella affinis *Canarienſis*, fol. oblongis integris. *Simpla-nobla* Canarienſium, *Planta* oblongis amplioribus ſplendentibus folijs ternis circa caulem ambientibus, venoſis *Alm. Bot.* 347. 137 *Names.*

This ſingular Plant *Flowers* and *Seeds* very well in *Chelſea* Garden. *Place.*

SECT. XVI. Exotick Trees.

Carolina *Pepper-tree.* 138

Baccifera *Caroliniana* capreolata, *Piſi cordati* folio Muſ. Noſt. 617. *Frutex* ſcandens, *Petroſelini* folijs *Virginianus*, claviculis donatus *Pluk.* Tab. 412. fig. 2. *Mantiſſ.* 85. pl. 5. an *Thalietri* folijs *Portoricenſis*, Planta ſcandens capreolis *Hort.* Beaumont 38. *Names.*

I firſt obſerved this elegant Plant in Mr *Darby*'s Garden at *Hoxton.*

Virginia Benjamin.

Arbor Benzoinifera *Breyn.* Pr. 2. p. 16. Arbor *Virginiana* Citriæ vel Limoniæ folio *Benzoinem* fundens H. *Amſt.* Vol. 1. p. 189. fig. 97. *Arbor* Virginiana *Piſaminis* folio, baccata *Benzoinem* redolens *Pluk.* Tab. 139. fig. 3 & 4. *Alm. Bot.* 42. pl. 11. 139 *Names.*

The Leaves of this Tree are plain, thin, ſmooth, and pale underneath; they taſte ſomewhat like *Black Currans.* The Flowers ſmall, 5 leaved, of a yellowiſh green, and quickly fall, the *Berry* ſingle Kernel'd. It Flowers early in the Spring, before the Leaves appear, and has grown many Years with the Biſhop of *London* at *Fulham.* *Character.*

Venice *Sumach.* Ray 1697. cap. 7.

Cotinus Coriaria *Dod.* 780. fig. *Coccigrya* ſive *Cotinus* putata IB 1. l. 4. p. 494. Fig. *Chabr.* 37. lc. 4. Coggyrria *Cluſ.* 16. fig. opt. *Pan.* 98. fig. Coggyrria *Theophraſti* & Cotinus *Coriarius* Plinij *Ger.* 1293. fig. *Jonſt.* 1476. fig. *Coggygria* ſive *Cotinus* Coriaria *Park.* 1451. fig. 4. *Cocconilea* ſive *Coggygria* CB. 415. *Scodano* Incolis *Appennini.* du Fuſtet *Sabaudis.* 140 *Names.*

Cluſius.

Cluſius ſays the *Tanners* about *Vienna*, make uſe of this Shrub, to cleanſe their *Leather*, as others do with *Sumach:* The *Leaves* are ſold in the Markets of *Spain* and *Italy*, for great Sums to thoſe that dreſs *Spaniſh Leather*. *Gerard*. The *Bark* is uſed by *Tanners* to dye yellow. *Camerarius* and others ſay the ſame of its *Roots* and *Branches*. It *grows* in the Hedges of *Italy*, *Lombardy*, *&c.* where is *flowers* in *May*, and ripens its *Seed* in *July* and *Auguſt*, *&c.*

141 Barbadoes *Fiddlewood*.

Names. Citharexylum *Americanum* alterum, folijs ad marginem dentatis *Pluk.* Tab. 161. fig. 5. *Alm. Bot.* 108. pl. 4.

Its *Leaves* deeply notcht like the *common Cheſnut* both in Shape and Size. We have a ſmall Tree in *Chelſea Garden*, but I have ſeen it much larger at *Hampton Court*, *Place.* whither it was firſt brought from *Barbadoes* by *James Rheede*, who *King William* ſent thither, to bring over *Plants* and *Seeds*.

Jamaica *Thorny-Ebony*, Ray *Dendr.* 72. pl. 27.

142 Ebenus *Jamaicenſis*, Arbuſcula *Buxi* folijs ſpinoſa *Alm.* *Names.* *Bot.* 132. (*Flore* luteo papilionaceo *ſiliquifera*) Pluk. *Tab.* 89. fig. 1. *Lycio* ſimilis, Frutex Indicus ſpinoſus *Buxi* folio *Breyn.* Pr. 2. *Hort. Amſt.* Vol. 1. p. 161. fig. 83.

From the Boſom of its Leaves, as I have obſerved, come ſmall, five petal'd yellowiſh Flowers like other *Lyciums*, and not a Papilionaceous one, as *Dr Plukenet* firſt aſſerted.

Apple leaved *Forreigner*.

Mali folio, *Arbor* exotica.

143 Its *Leaves* grow oppoſite, finely notcht with tranſpa-
Names. rent Veins. This *Tree* has been ſeveral Years an Inhabitant in *Chelſea Garden*, but as yet without either *Fruit* or *Flower*.

Virginia *Mulberry*. Ray 1430.

Morus *Virginiana* folijs lobatis. *Morus* Virginiana *Park* 1492. 3.

Its

Its *Leaves* are often divided like the *Fig.* This and the *Hazel-leaved*, thrive very well in *Fulham Garden.*

Virginia *Hazel-leaved* Mulberry, *Ray* 1799. 9.

145 *Names.* Morus *Virginiana* lacteſcens, latiſſimo folio *Hort. Beaumont* 30. Morifolia *Virginienſis* arbor, Loti arboris inſtar ramoſa, folijs ampliſſimis *Pluk.* Tab. 246. fig. 4. *Corylus* maxima folio latiſſimo *Virginiana* Hort. Comptoniano *Ray* H. Plant. 1799. 9.

Its Leaves reſemble thoſe of *Hazel*, but much larger.

Virginia *Piſhamin*, Ray 1918.

146 *Names.* *Piſhamin* Virginianum *Park.* 1523. fig. 4. opt. *Puchaminiſera* Virginiæ *Laet.* Ind. Occid. l. 3. c. 25. *Guajacana* Virgin. *Piſhamin* dicta *Ray* H. Pl. 1918. Guajacana *Loto arbori* ſ. Guajaco *Patavino* affinis *Virginiana* Piſhamin *dicta* Parkinſono *Pluk.* Tab. 244. fig. 5. opt. *Loti Africanæ* ſimilis arbor C B. 448. 4. ex ſent. *Pluknet.*

There is a large Tree of this in the Biſhop of *London*'s Garden at *Fulham.*

Welted *Virginia* ſweet Gum *Ray* 1799. 8.

147 *Names.* *Platanoides* Virginiana *Aceris* folio, ramulis fungoſis. Acer *Virginian.* odoratum *Herm.* H. Leyd. 641. *Acer.* Virgin. ſive *Canadenſe* Ray H. Pl. 1702. 6. Acer *Virginianum* alterum *Muſ. Tradeſc.* 74. *Liquid-Ambari* arbor, ſive *Styraciflua* Aceris folio, fructu *Tribuloide* i. e. pericarpio orbiculari, ex quamplurimis apicibus coagmentato ſemen recondens *Pluk.* Tab. 42. fig. 6. Styrax *Aceris* folio *Ray* 1681. *Styrax* arbor *Virgin.* Aceris folio, potius *Platanus* Virgin. *Styracem* fundens *Ray.* H. Pl. 1799. 8.

Deſcription. This grew many Years with old *Edward Morgan* in his Garden behind the Palace at *Weſtminſter*, as Doctor *Pluknet* teſtifies, who hath given a very good *Figure* of the *Fruit*, *Seed* and *Leaves* of this Tree, and has particularly taken notice of the *welted Bark* or Fungoſe excreſcencies which grow to its Branches, as may yet be *Place.* ſeen in a large Tree in the Biſhop of *London*'s Garden at *Fulham.*

148 Virginia *Sweet Gum.*

Names. *Platanoides* Virginiana *Aceris* folio auriculato.

This is diſtinguiſht from the *welted*, not only in having ſmooth twigs, but its younger *Leaves* are remarkably auriculated at the baſe, and the upper point much narrower and often trifid, which has been nicely obſerved by that intelligent Perſon Mr *Millward*, my Lord Biſhop of *London*'s preſent Gardiner, who very well underſtands the true Culture of *Exotick* Trees and Herbs, where this grows with the laſt.

Place.

149 Cape *Bladder Nut*, Ray *Dendr.* 84.

Names. Staphylodendron *Africanum*, fol. lucido *Par. Bat.* pr. fol. ſingulari lucido *Par. Bat.* 232. fig. *opt.* Staphylodendron *Africanum* ſempervirens fol. ſplendentibus *Cat. Hort.* Med. *Amſt.* & Hiſt. 1. p. 187. c. 96. fig. Staphylodendron *Æthiopicum* monolaſiocallio-phyllon ſingulari hirſuto folio nitente *Pluk.* Tab. 63. fig. 4. & *Tab.* 317. fig. 5. *Arbor* quædam rariſſima lucens, fructu *Halicacabi* Breyn. Cent. 177. *Halicacabum* arboreſcens *Ejuſd.* 180.

Place. Dr. *Pluknet*, *Commelin* & *Herman*, have each given different *Figures* of this Tree in all its Parts. The Dutcheſs of *Beaufort* ſhewed me this in her Stows at *Badmington* 5 or 6 Yards high: I have alſo gathered it at *Hampton-Court* in Flower, under the Care of Mr *Wiſe*, Her Majeſty's Gardiner.

150 Virginia *Trefoil Bladder Nut*, Ray 1682. 3.

Names. Staphylodendron *Virginianum* triphyllum E. B. 489. *Inſt.* 616. Staphylodendron *Virgin.* trifoliatum *Herm.* H. Leyd. 582. *Nux Veſicaria* altera *Virginienſis* Park. 1417. *Piſtachia* ſylv. trifolia *Virginenſis* Vallot. Piſtachia *Virgin.* ſylv. trifolia H. *Blæſ.* 295. *Staphylodendrum* trifoliatum majus *Virginianum Munting* der Plant. 119. fig. opt.

Place. I have obſerved this in *Flower* and *Fruit*, at the Biſhop of *London*'s Garden at *Fulham*.

Horſe

Horſe Cheſnut, Ray 1683. cap. 14. 151

Caſtanea Equina *Clus.* 8. fig. *opt.* & Orig. *Dod.* 814. fig. *Ger* 243. fig. 2. *Jonſt.* 1440. fig. 2. *Lob.* Icon. 2. p. 161. 1. *Belg.* 2. p. 191. fig. *Obſ.* 588. *Tab.* Icon. 972. 1. *Hiſt.* 2. p. 680. fig. 2. Caſtanea *Equina*, folio multifio *Chabr.* 58. Ic. 4. I. B. 1. l. 7. p. 128. fig. *Caſtanea* folio multifido C. B. 419. *Hippocaſtanum* vulgare E. B. 485. *Inſt.* 612. *Names.*

This ſpecious Tree is ſaid to grow in *Candy* and about *Conſtantinople.* *Place.*

White flowered *Spaniſh* Broom, *Ray* 1727. 3. 152

Spartium *Hiſpanicum* Cluſij 103. fig. *opt.* & Orig. *Spartium* 3 flore albo C B. 396. 6. *Spartium* 2. fl. albo *Cluſij* Lob. *Icon.* 2. p. 91. 2. *Belg.* 2. p. 106. fig. *Obſ.* 533. Spartium 5. *Hiſp.* 2. Clus. *Tab.* Icon. 1107. 2. *Hiſt.* 2. p. 806. fig. 4. Spartium *Hiſp.* fl. candido *Chabr.* 86. Ic. 6. I. B. 1. l. 11. p. 398. fig. Spartium *Hiſp.* majus, flore albo *Park.* 232. fig. 14. *Pſeudo-Spartium* album aphyllon *Ger.* 1137. fig. 3. *Jonſt.* 1318. fig. 2. *Names.*

Carolus Cluſius firſt obſerved this about *Cales*, where it Flowers in *February.* Mr *Jezreel Jones* has alſo gathered it in the ſame Place. *Places.*

Common *Spaniſh* Ruſh-Broom, *Ray* 1726. 1. 153

Spartium arboreſcens ſeminibus *Lenti* ſimilibus C B. 396. 5. Spartium *Dioſcoridis*, Geniſta *Plinij* Clus. 102. fig. opt. *Spartium* Dioſc. *Narbon.* & *Hiſpan.* Lob. *Icon.* 2. p. 90. 2. *Belg.* 2. p. 104. *Obſ* 532. Spartium *Hiſp.* frutex vulg. *Park.* 231. fig. 12. Spartium *Hiſp.* 3. Tab. *Icon.* 1106. 2. *Hiſt.* 2. p. 806. fig. 1. Geniſta *Hiſpanica* Ger. 1131. fig. 3. *Jonſt.* 1313. fig. 3. Geniſta *Hiſpanica* flor. luteis amplis, ſem. *Lenti* ſimilibus *Herm.* H. Leyd. 269. *Geniſta* juncea I B. 1. 1. l. xi. p. 395. fig. falſa *Chabr.* 86. Ic. 4 *falſ.* *Names.*

It grows very common in *Italy*, *Sicily*, *Spain* and *Narbone.* *Place.*

China Tea-Thorn. 154

Rhamnus Chinenſis, *Liguſtri* folio. *Names.*

Deſcription. A thorny Shrub, with a pale *Bark* and Privet-like *Leaves*. I have as yet ſeen it only in the Biſhop of *London*'s Garden at *Fulham*, where its call'd the *Tea-tree*.

155 Trefoil *Poyſon-tree*, Ray 1699. c. 11.

Names. *Arbor* venenata *Joncquet* H. R. Paris. 16. *Arbor* Virginiana Tinctoria *quibuſdam*. Apocynum trifolium *Indicum* vulgo *Epimedium* Bodei a Stapel. 364. *Secund.* deſcript. *ſed* Figura *Arbuti* Duranti 42. *Edera* trifolia *Canadenſis* Cornuti 67. fig. *opt.* & Orig. *Epimedium* fruticans *Canadenſe* Londinenſibus *Ray* H. Pl. 1699. cap. 11. *Hedera* Virginienſis *Park.* 679 fig. 5. Hedera *Virginienſis*, virgulis procumbentibus *Herm.* H. Leyd. 306. *Toxicodendron* tryphillum glabrum E. B. 483. *Inſt.* 611. Vitis *Canadenſis* Munt. *Phyt.* 241. fig. 60. opt. *Vitis* ſylv. trifolia *Canadenſis* Park. 1556. 5.

Deſcription. This is a *Trifoliata* creeping *Shrub*, with whitiſh *Berries*, growing wild in *Canada*, &c.

156 Wing leaved *Poyſon-tree*, Ray *Dendr.* Vol. 3. p. 92. 2.

Names: Toxicodendron *Americanum* folio alato. Arbor *Americana* alatis ſolijs, ſucco lacteo venenata *Pluk.* Tab. 145. fig. 1. *Alm. Bot.* 45. pl. 14.

Deſcription. This has winged *Leaves* like the *Aſh*, but plain. It has been a long Inhabitant in *Chelſey* Garden.

Virginia *Creeper*, Ray 1699. c. 12.

157 *Names.* *Edera* 5 folia *Canadenſis* Cornuti 100 *fig.* Orig. *Hedera* 5 folia *Virginenſis* Park. 680. fig. 6. *Vitis* vel potius *Hedera* 5 folia *Virginienſis* Park. *parad.* 609. fig. 7. p. 612. deſcr. 20. *Vitis* Hederacea *Indica* Bodei a Stapel. 364. fig. *Vitis* 5 folia *Canadenſis* ſcandens *El. Bot.* 487. Inſt. 613.

Place. This foreign *Creeper* is now become a familiar to moſt *Houſes* as well as *Gardens*.

158 Curran leaved *Spirey*, Ray 1708. c. 7.

Names. Spirea *Opuli* folio E. B. 490. Inſt. 618. *Anonymus* Ribeſij folijs *Robert* Icon. *Anonymus* Americana, *Ribeſij* folijs umbellata, *Melanthi* capſulâ minore *Alm. Botan.* 33.

Evonymus

Evonymus Virgin. *Ribesij* folio, capsulis eleganter bullatis *H. Amst.* 169. fig. 87.

This particular Shrub has grown many Years in the Bishop of *London's* Garden at *Fulham*. It grows wild in *Canada* and *Virginia*.

Round leaved *Spirey*, Ray 1782. Cap. 3. 159

Spirea *Hyperici* folio non crenato *El. Bot.* 490. *Inst.* 618. *Names.* Spirea *Hyperici* fol. non crenato, flor. expansis albis *Bocc.* Mus. 137. Tab. 96. *Hypericum* frutescens *Canadense* Robini. *Hypericum* frutescens *Americanum* flore albo *Park.* 575. *fig.* bonâ 7. *Hypericum* arborescens *Munt.* Phyt. 646. Fig. opt. 181. *Pruno* sylv. affinis *Canadensis* C B. app. 517. *Pluk.* Tab. 218 Fig. 5. *Alm. Bot.* 308.

This was first brought from *Canada* to *Robinus* in *Paris*, and is now in many of our own Gardens.

Ceilon *Silver-Olive*, Ray *Dendr.* p. 44. 4. 160

Olea sylv. argenteo folio *Zeylanica* Alm. Bot. 269. pl. 2. *Names.* *Zizyphus* alba argentea *Zeylanica* Herm *Breyn.* Pr. 2. p. 105. *Zizyphus* argentea *Zeylanica* spinis carens *Wælæmbilla* Zeylanens. *Par. Bat.* pr. 386. Zizyphus *Zeylanica* argentea, *Mali Coloneæ* folio; *Wælæmbilla* Indigenis Herman. Ray Vol. 3. *Dendr.* p. 44. 4.

I observed this beautiful Tree the last Summer in Her *Place.* Majesty's Royal Gardens at *Hampton Court*.

White *Jujube*. Lecaan 64. 8. *Ray* 1576. c. 1. 161

Olea *Bohemica* sive *Eleagnos* C B in Matth. 174. fig. opt. *Names.* *Olea* sylvestris *Septentrionalium* Lob. Ic. 2. p. 136. 1. *Belg.* 2. p. 159. *Obs.* 567. *Olea* sylv. folio molli incano C B. 472. 3. Oleaster *Cappadocicus* Park. 441. fig. Eleagnus *Orient.* angustifol. fructu parvo Olivæ formi, subdulci T. *Corall.* 53. Zizypha *alba* Clus. 29 fig. *Zizypha* Cappadocica *Ger.* 1306. fig. 2. *Jonst.* 1491. fig. 2. Zizyphus *Cappadocica*; quibusdam *Olea* Bohemica *Chabr.* 49. Ic. 4. I. B. 1. l. 7. p. 27. fig.

Rawolph says, this elegant Tree grows in *Æthiopia*, *Syria* and Mount *Libanon*. *Clusius* has observed it in the Hedges of *Granada*, and as *Matthiolus* asserts, its found in the Woods of *Bohemia*.

XXI. *A ſhort Account of ſome* Swediſh *Minerals, &c. ſent from Mr* Angeſtein, *Overſeer of the King of* Sweden's *Mines, to Mr* James Petiver, *Apothecary, and F. R. S.*

I. *Bitumen* foſſile, coagulatum, in Ferrifodina *Betzberg* apud *Suecos*.

This is very light, black, and ſhining, like *Pitch*, or *Canal-Coal*; in taſte inſipid, brittle and not clammy.

II. Minera *Ferri* Betzbergæ.

A blackiſh *Mineral*, full of ſmall glittering ſandy Particles, which eaſily break and crumble ſmall like *black Sand*; its ponderous, and without any droſſy Mixture.

III. Minera *Martis* Betzbergæ.

The outſide lumps are ſmooth and ſhining, its inſide of finer Particles than the laſt, but when broke more ſhining, large and flakey.

IV. Minera *Martis* Betzbergæ, *Carbonis* facie.

The outſide ſmooth and ſomewhat ſhining like *Pit-Coal*, the inſide more gray and glittering.

V. Minera *Martis* ditiſſima, *fodinæ* Danemoræ *Sueciæ*.

This reſembles a *Slat-Coal* of a Lead colour, heavy, but neither ſhining nor glittering, except a little Braſſey in the interſtices; which are but few, and thoſe irregular: This had a ſparry Vein thro' it, about the thickneſs of a quarter of an Inch.

VI. *Rubinus* globuloſus, è *Fodina* Garpenberg *Sueciæ*.

Theſe are near as long as *Hazel* Nuts; the outſide in many Places tranſparent, but broken and rugged; they ſeem more ponderous than a clear *Ruby* of the ſame ſize.

Minera

VII. Minera Veneris ſeu *Cupri*, Garpenbergæ.

Its exterior face *Braſſey* and ſhining, with ſome few ſpaces of deep Copper, with a blue in the Center; the interſtices are pale Braſs in ſome Places, and where its freſh broken into the heart of the Oar, its of a glorious Luſtre; in ſome places its coated, with a white or diſcoloured ſparr.

VIII. Minera *Cupri* è fodina *Flaklunenſi* Sueciæ.

This is moſtly compoſed of pale braſſey micæ, with a ſmall mixture of deeper, and near a quarter part of black ſprinkles ſomewhat ſhining.

IX. Minera *Cupri* ditiſſima *LAZUR* dictum, è fodina *Linſnadienſis* Provincia *Heerdacenſis* Sueciæ.

The Oar is very like No. VII. its coated with yellowiſh *Spar*, mixt with a paleiſh white.

X. Minera *Argenti-Plumbea* è fodina *Hollefarſen* Sueciæ.

Very like our *Mendip Lead Oar*, full of large ſparkling Flakes or Micæ.

XI. Certum genus *Aluminis plumoſi* cum Minera *Plumbi* intermixtum, é fodina *Saklberg* Sueciæ.

The *Amiant* part is of a light Gray or Lead colour, compoſed of fine long brittle Filaments; the outſides and hollows are filled with very white ſhort and brittle Spar.

XII. Mátrix Minera *Argenteæ*, *Saklbergæ*.

This is a ſhort irregular white ſhining *Spar*, much like the laſt which lies with the *Amiantus*; it eaſily breaks into ſmall pieces with the Hammer.

XIII. Minera Lunæ & Saturni è *Saklberg*.

The Sparks of this are very bright and ſhining, with ſmaller micæ than No. X. in it are interſpers'd ſome little bits of *white* Spar.

XIV. Mi-

XIV. Minera Lunæ & Saturni *Saklbergæ* unâ cum Matrice.

This *Oar* has a particular Face, being compoſed of many ruinous angular Columns lying confuſedly; ſome long and crooked, others ſhort; amongſt them are ſome like *Glaſs* greeniſh and tranſparent; theſe very eaſily fall into pieces with a light blow of a Hammer.

XV. Minera Lunæ, Arſenici & Saturni ex *Argenti fodina* Saklberg.

The Flakes of theſe are pretty large like No. X. and very glittering.

XVI. *Cuprum* præcipitatum, fodina *Schilou* Sueciæ.

Its outer Coat is ruſty, and reſembles an *Iron Stone* or *Clay*, under which are ſome thin Strata of a dark or blewiſh hue; the Center of an Iron brown full of ſmall *Copper* Micæ, which in ſome places are of a refulgent fiery luſtre.

XVII. Minera *Cupri* rariſſima è *Schilou*.

This reſembles *Colcothar*, but of a brighter red, and very weighty; it ſeems to have ſome very ſmall ſhining Particles in it, and in ſome parts of its outſides, it has a ſort of ſullen greeniſh *Wood-like* ruſt, but its not very heavy.

XXII. *A Letter from Father* Papin, *to Father* Le Gobien, *containing ſome Obſervations upon the* Mechanic Arts *and* Phyſick *of the* Indians. *Taken from the Ninth Volume of Letters of the Miſſionary* Jeſuits, *Printed at* Paris *in* Octavo.

Bengale, Dec: 18. 1709.

Reverend Father,

IN your laſt Letter you deſire I would communicate to you ſuch Remarks and Obſervations as occur in this Country. I wiſh my Employment would permit me to ſatisfy you on this Subject, according to your deſire. What I now write is only a ſhort Account of what I deſign to ſend to you more at large hereafter, if you think it worth your Acceptance.

This Country furniſhes Materials for Mechanic Arts and Sciences more than any Country that I know of. The Artiſants here have wonderful Skill and Dexterity: They excel particularly in making Linnen-Cloath; which is of ſuch fineneſs, that very long and broad Pieces of it may eaſily be drawn thro' a ſmall Ring.

If you tare a piece of Muſlin into two Pieces, and give it to one of their Fine-Drawers to ſet it together again, it will be impoſſible for you to diſcover where it is joyned, tho you mark it on purpoſe to know it. They will place together ſo artificially the Pieces of Glaſs or *China* Ware, that one cannot perceive it was ever broken.

Their Embroiderers work in Filigreen very curiously: They imitate exactly any Work made in *Europe*, tho' the Engine they make use of, and all their other Utensils, do not cost them above the value of a Crown.

The Looms that their Weavers use do not cost them more: With these they sit in their Courts and Yards, or on the side of the High-way, and work those fine Stuffs that are so highly esteem'd over all the World.

They have here no need of Wine to make *Aqua Vitæ*; but make it of a Syrup, Sugar, some certain sorts of Barks, and Raisons; it burns better, and is stronger than that made in *Europe*.

They paint Flowers, and gild very finely upon Glass. I was surprized to see their Vessels, which they use to cool Water in, and are not thicker than two Leaves of Paper pasted together.

Their Water-men row after a different manner from ours. They move the Oar with their Feet, and their Hands serve instead of the *Hypomochlion*, or Roller on which it turns.

The Liquor which their Painters use, does not any way lose its colour, nor is it tarnish'd by Lye.

The Husbandmen in *Europe* prick their Oxen with a Goad to make 'em go faster; but here they only twist or wring their Tails. These Beast are very docile: They teach them to lye down and rise up when they take up or lay down their Burthen.

They make use of a kind of hand Mill to break their Sugar Canes, which does not cost them above the value of ten Pence.

The Person that grinds, works and fashions the Stone himself with Lac and Emery.

Their Masons will pave the largest Room with a sort of Cement made of Brick Dust and Lime, so that it shall seem

ſeem to be but one Stone, and is much harder than Gravel.

I ſaw them make a ſort of Pent-houſe, that was forty Foot long, eight Foot broad, and five or ſix Inches thick; which they raiſed up in my Preſence, and fixed it to the Wall on one ſide only, without putting any Prop under it to ſupport it.

Their Pilots take the Altitude (or Latitude of Places) with a Cord that has ſeveral Knots in it. They put one end of the Cord between their Teeth, and by means of a piece of Wood fixed to it, that has a Hole through it, they eaſily obſerve the Tail of *Urſa minor*, which is commonly called the Polar Star, or North Pole.

Their Lime is uſually made of Sea Shells: That which is made of Snail Shells ſerves to whiten their Houſes; and that which is made of Stones they chaw with the Leaves of *Betel*. I have ſeen ſome of them that would take as much of it in a Day as the quantity of an Egg.

They make their Butter in the firſt Pot that comes to hand: They cleave a Stick into four Quarters at one end, and ſtreaching them out a ſunder in proporton to the ſize of the Pot that contains the Milk, they turn the Stick round different ways (backwards and forwards) by means of a Cord twiſted about it; and by this means in a ſhort time make the Butter.

Thoſe that ſell Butter have the Art of making it paſs for freſh, when it is old and rank. To do this, they melt it, and pour upon it ſowr curdly Milk; and in eight Hours after they take it out in Lumps and ſtrain it it thtough a Cloath for Sale.

Their Chymiſts make uſe of the firſt Pot they meet with to revive Cinabar and other Preparations of Mercury, which they do after a very ſimple manner. They eaſily reduce all Mettals into a Powder; as I my ſelf can witneſs. They ſet a great value upon Talk and

Braſs, which conſume, as they ſay, all viſcous Humours, and remove the moſt ſtubborn Obſtructions.

Their Phyſicians are more Cautious in uſing Sulphur than they are in *Europe*: They correct it with Butter; and put Broath upon it made with long Pepper, in which are boiled the Kernels of the *Indian* Pine Apple. Wolfs-bane corrected in Cows Urine, and Arſenick corrected with Juice of Lemons, they uſe with ſucceſs in Fevers.

A Phyſician is not permitted to take care of a ſick Perſon, unleſs he can gueſs at his Diſeaſe, and what Humour is moſt predominant; which they eaſily know by feeling the Pulſe of the Patient. Nor are they often deceived, as I can witneſs, having my ſelf ſome Experience in this Art.

The principal Diſeaſes that reign in this Country, are, 1. The *Mordechin*, or *Colerà morbus*. The means by which they cure it, is by not ſuffering the Patient to drink, and by burning the Soals of his Feet. 2. The *Sonipat*, or Lethargy; which is cured by putting into the Perſon's Eyes bruiſed Pepper mixed with Vinegar. 3. The *Pilhai*, or Obſtruction of the Spleen; for which they have no Specific Remedy, unleſs it be that of the *Joghis*, (or converted *Indians*:) They make a ſmall Inciſion under the Spleen, and put in between the Skin and Fleſh a long Needle; from whence by ſucking with the end of a Horn, they draw out of the Orifice a kind of fat Matter that reſemble *Pus* or Corruption.

Moſt of the Phyſicians have a Cuſtom of putting a Drop of Oil on the Urine of the ſick Perſon: If it ſpreads abroad, they ſay it is a ſign that the Patient is very hot within; but on the contrary, if it keeps together intire, it is a ſign that he wants Heat.

The

The Common People uſe very ſimple Medicines. For the Megrim, they ſmoak, like Tobacco, the dried Bark of a Pomegranate Tree reduced to a Powder, and mixt with four Corns of Pepper. For the common Head-ach, they ſmell to a *Nodule*, compos'd of a Mixture of *Sal-Armoniac*, Lime, and Water, tyed up together in a Linnen Rag. Such Dizzineſſes of the Head, as proceed from a cold thick Blood, they cure by drinking Wine, in which are ſteep'd a few Grains of Frankincenſe. For Deafneſs, occaſioned by too great a quantity of cold Humours, they drop into the Ear a Drop of Juice of Lemons. When the Brain is charged and oppreſſed with watery Humours, they ſmell to black Cumminſeed bruiſed and tyed up in a Nodule. For the Tooth-ach, they put upon the Tooth affected a Paſte made of Crums of Bread, and the Seed of the *Stramonium*, which ſtupifies the Part affected, and eaſes the Pain. In an Hæmorrhage, or Flux of Blood, they make the Perſon ſmell to bruiſed Mother-worth, or Wormwood. For a too great Heat of the Breaſt, and ſpitting of Blood, they cover over with Paſte a *Giraumont*, (which is an *Indian* Fruit like a *Gourd*, and taſtes like a *Citrull*,) which they bake in an Oven, and drink the Water that comes from it. For the Cholick that proceeds either from Wind or Watery Humours, they give to drink four Spoonfuls of Water, in which Anniſeeds and a little Pepper have been boiled to a Conſumption of half. They alſo bruiſe an Onion with Ginger, and apply it to that part of the Belly where there is moſt Pain. For the Lientery, they roaſt a Clove of Garlick under the Aſhes, and when they go to Bed they hold it in the Mouth and ſuck out the Juice of it. If they drink the Juice of the Leaves of Cowcomber bruiſed, it Purges and Vomits them. They cure a Difficulty of Urine, by drinking a Spoonful of Oil of Olive well mixed together, with a like quantity of Water. For

a Looſeneſs, they torrify a Spoonful of white Cummin-ſeed, and a little powdered Ginger, which they ſwallow mixt with Sugar. I have ſeen them cure Fevers which begin with a ſhivering Fit, by giving the Patient three large Pills made of Ginger, black Cummin and long Pepper. For Tertian Agues, they give the Perſon for three Days together three Spoonfuls of the Juice of *Teucrium*, or great Germander, with a little Salt and Ginger. I am, &c.

PAPIN.

XXIII. *A Letter from Father* Bourzes *to Father* Eſtienne Souciet, *concerning the* Luminous Appearance *obſervable in the* Wake *of* Ships *in the* Indian *Seas*, &c. *Taken from the Ninth Volume of Letters of the* Miſſionary Jeſuits.

Reverend Father,

AS I was ready to embark for the *Indies*, I receiv'd your Letter, in which you deſire me to allow ſome time for making Inquiries into Arts and Sciences, as far as the neceſſary Buſineſs of my Miſſion will permit me, and to communicate to you ſuch Diſcoveries as I ſhall make.

I met with in this Voyage ſome Things which I believe would have been acceptable to you; but wanting Inſtruments, which you know are abſolutely neceſſary to make any Obſervation with exactneſs, I was forced

forced to content my ſelf with ſuch Obſervations only as I could make with my naked Eye, without any other Aſſiſtance.

I ſhall begin with a *Phænomenon* in Natural Philoſophy, which has ſomething new in it to thoſe that never were at Sea; and perhaps thoſe that have been there, never obſerved it with ſufficient Attention.

You have read what Philoſophers ſay concerning thoſe Sparkles of Light which appear in the Night time on the Surface of the Sea; but you muſt obſerve at the ſame time, that they paſs over this *Phænomenon* very ſlightly, or at leaſt endeavour more to give a reaſon for it, that may be agreeable to their own Principles, than to explain it as it really is. Before they undertake to account for the Wonders of Nature, in my Opinion they ought to enquire very well into all Particulars; which I thought neceſſary to do on this preſent Subject.

I. When the Ship ran apace, we often obſerved a great Light in the Wake of the Ship, or the Water that is broken and divided by the Ship in its Paſſage. Thoſe that did not view it nearly, often attributed it to the Moon, the Stars, or the Lanthorn at the Stern; as I did my ſelf, when I firſt perceived it: But having a Window that look'd directly down upon it, I was ſoon undeceived; eſpecially when I ſaw it appear more bright, when the Moon was under the Horizon, the Stars covered with Clouds, and no Lights in the Lanthorn, or any other Light whatſoever caſt upon the Surface of the Water.

II. This Light was not always equal; ſome Days it was very little, others not at all; ſometimes brighter, others fainter; ſometimes it was very vivid, and at other times nothing was to be ſeen.

III. As

III. As to its Brightneſs, perhaps you may be ſurprized when I tell you that I could eaſily read by it, tho' I was 9 or 10 Foot above it from the Surface of the Water; as I did particularly on the 12th of *June* and the 10th of *July* 1704. But I muſt inform you that I could read only the Title of my Book, which was in large Letters: Yet this ſeemed incredible to thoſe I told it to; but you may believe it, and I aſſure you that it is a real Truth.

IV. As to the Extent of this Light, ſometimes all the Wake appeared Luminous to 30 or 40 Foot diſtant from the Ship; but the Light was very faint at any conſiderable diſtance.

V. Some Days one might eaſily diſtinguiſh in the Wake ſuch Particles as were Luminous from thoſe that were not: At other times there was no difference. The Wake ſeemed then like a River of Milk, and was very pleaſant to look on; as it appear'd particularly on the 10th of *July* 1704.

VI. At ſuch times as we could diſtinguiſh the bright Parts from the others, we obſerved that they were not all of the ſame Figure: Some of 'em appear'd like Points of Light; others almoſt as large as Stars as they appear to the naked Eye. We ſaw ſome that looked like Globules, of a Line or two in Diameter; and others like Globes as big as ones Head. Oftentimes theſe *Phosphori* form'd themſelves into ſquares, of 3 or 4 Inches long, and one or two broad. Sometimes we could ſee all theſe different Figures at the ſame time; and particularly on the 12th of *June*, the Wake of the Veſſel was full of large *Vortices* of Light and theſe oblong Squares, which I have been ſpeaking of. An other Day, when our Ship ſailed ſlowly, the *Vortices* appeared and diſappeared again immediately like flaſhes of Lightning.

VII. Not only the Wake of a Ship produces this Light, but Fiſhes alſo in ſwimming leave behind 'em a lumi-

luminous Tract; which is so bright that one may distinguish the largeness of the Fish, and know of what Species it is. I have sometimes seen a great many Fishes playing in the Sea, which have made a kind of artificial Fire in the Water that was very pleasant to look on. And often only a Rope placed cross-wise will so break the Water, that it will become luminous.

VIII. If one takes some Water out of the Sea, and stirs it never so little with his Hand in the dark, he may see in it an infinite Number of bright Particles.

IX. Or if one dips a piece of Linnen in Sea Water, and twists or wrings it in a dark Place, he shall see the same thing; and if he does so, tho' it be half dry, yet it will produce abundance of bright Sparks.

X. When one of the Sparkles is once formed, it remains a long time; and if it fix upon any thing that is solid, as for instance on the side or edge of a Vessel, it will continue shining for some Hours together.

XI. It is not always that this Light appears, tho' the Sea be in great Motion; nor does it always happen when the Ship sails fastest: Neither is it the simple beating of the Waves against one another that produces this Brightness, as far as I could perceive: But I have observed that the beating of the Waves against the Shore has sometimes produced it in great plenty; and on the Coast of *Brazil* the Shore was one Night so very bright, that it appeared as if it had been all on Fire.

XII. The Production of this Light depends very much on the Quality of the Water; and, if I am not deceiv'd, generally speaking, I may assert, other circumstances being equal, that the Light is largest when the Water is fattest and fullest of Foam; for in the main Sea the Water is not every where equally pure; and sometimes if one dips Linnen into the Sea, it is clammy when it is drawn up again. And I have often observed, that when

the Wake of the Ship was brighteſt, the Water was more fat and glutinous; and Linnen moiſten'd with it produced a great deal of Light, if it were ſtir'd or mov'd briskly.

XIII. Beſides, in ſailing over ſome Places of the Sea, we find a Matter or Subſtance of different Colours, ſometimes red, ſometimes yellow. In looking at it, one would think it was Saw-duſt: Our Sailors ſay it is the Spawn or Seed of Whales. What it is, is not certain; but when we draw up Water in paſſing over theſe Places, it is always viſcous and glutinous. Our Mariners alſo ſay, that there are a great many heaps or Banks of this Spawn in the North; and that ſometimes in the Night they appear all over of a bright Light, without being put in Motion by any Veſſel or Fiſh paſſing by them.

XIV. But to confirm farther what I ſay, *viz.* That the Water, the more glutinous it is, the more it is diſpoſed to become luminous, I ſhall add one particular which I ſaw myſelf. One Day we took in our Ship a Fiſh which ſome thought was a *Boneta*. The inſide of the Mouth of the Fiſh appeared in the Night like a burning Coal; ſo that without any other Light, I could read by it the ſame Characters that I read by the Light in the Wake of the Ship. It's Mouth being full of a viſcous Humour, we rubbed a piece of Wood with it, which immediately became all over luminous; but as ſoon as the moiſture was dried up, the Light was extinguiſh'd.

Theſe are the Principal Obſervations that I made upon this *Phænomenon:* And I leave you to examine if all theſe Particulars can be explained by the Syſtem of ſuch as aſſert, that the Principle of this Light conſiſts in the Motion of a ſubtle Matter, or Globules, cauſed by a violent agitation of different kinds of Salts.

I ſhall add next a word or two concerning Marine Rain-bows, which I obſerved after a great Tempeſt off of the Cape of *Good-Hope*. The Sea was then very much toſſed, and the Wind carrying off the tops of the Waves, made a kind of Rain, in which the Rays of the Sun painted the Colours of a Rain-bow. It is true the common *Iris* has this advantage over ours, that its Colours are more lively, diſtinct, and of longer Extent. In the Marine *Iris* we could diſtinguiſh only two Colours, *viz.* a dark Yellow on that ſide next the Sun, and a pale Green on the oppoſite ſide: The other Colours were too faint to be diſtinguiſh'd: But in recompence for this, theſe *Iris's* are in a greater Number; one may ſee 20 or 30 of 'em together; they appear at Noon-day, and in a Poſition oppoſite to that of the common Rain-bow, that is to ſay, their Curve is turned as it were towards the bottom of the Sea. Tho' in theſe long Voyages one ſees nothing but Water and Sky, yet each of 'em affords ſuch Wonders in Nature, as may well employ the time of thoſe that have Knowledge enough to diſcover them.

Laſtly, to put an end to theſe Obſervations upon Light, I ſhall add only one more, concerning Exhalations in the Night, that form in the Air a long Tract of Light. Theſe Exhalations make a Tract of Light much larger in the *Indies* than they do in *Europe*. I have ſeen two or three that I ſhould have taken for real Rockets: They appear'd near the Earth, and caſt a Light like that of the Moon ſome Days after her Change. They fall ſlowly, and in falling make a Curve Line; eſpecially one which I ſaw on the main Ocean, at a great diſtance off at Sea, on the Coaſt of *Malabar*. I am, *&c.*

De BOURZES.

XXIV. *A Letter from Mr.* James Yonge, F. R. S. *to Dr.* Hans Sloane, R. S. Secr. *containing the Case of a Woman who had her* Menſes *regularly to 70 Years of Age.*

Plymouth, July 17. 1713.

SIR,

AT *Lamerton*, fifteen Miles from this Town, dy'd lately a Woman of Eighty ſix Years old; who to the Age of ſeventy had her *Menſes* plentiful and regular. At that time they ceaſed, and ſoon after followed the like Eflux from the *Hæmorrhoids*, which continued till ſhe got on the wrong ſide of Fourſcore.

She was till then healthful and ſtrong, of a vigorous Aſpect, ſmooth, plump, and florid in Countenance, like one not half ſo Old: Her Appetite was very good; her Intellects clear and ſound; and her ſight ſo perfect, that ſhe could to the laſt thread a Needle, and read ſmall Print without Glaſſes.

When that Flux ceaſed, ſhe became Gouty; and about one Year before ſhe dy'd, there aroſe an Apoſtumation on one of her Wriſts, which open'd, and diſcharged much chalky Matter and ſome Stones. The Day ſhe dy'd, ſhe aroſe out of her Bed; and after performing ſome Chriſtian Devotions, expired.

She was never ſick before the Hemorrhoidal Flux ſtopt, except once at *Exeter*, where ſhe was born, and then lived, ſhe became infected with what they called the Plague: It ended in a critical Abceſs in one of the Emunctories; and which is very ſtrange, during all the time of

of that Sickneſs, ſhe nurſed a Male Child, who is yet alive, and one of our Faculty; from whom I have this Relation.

This Hiſtory will afford occaſion to divers Speculations; which I will not attempt to anticipate, but refer them to the Royal Society. I am, *&c.*

JAMES YONGE.

XXV. *The Deſcription of a* Tartarian *Plant, call'd* Gin-ſeng; *with an Account of its Virtues. In a Letter from Father* Jartoux, *to the Procurator General of the Miſſions of* India *and* China. *Taken from the Tenth Volume of Letters of the Miſſionary* Jeſuits, *Printed at* Paris *in* Octavo, 1713

Peking, April 12. 1711.

Reverend Father,

THE Map of *Tartary*, which we made by Order of the Emperor of *China*, gave us an Opportunity of ſeeing the famous Plant *Gin-ſeng*, ſo much eſteem'd in *China*, and ſo little known in *Europe*. Towards the end of *July* 1709. we arrived at a Village not above four ſmall Leagues diſtant from the Kingdom of *Corea*, which is inhabited by thoſe *Tartars* called *Calca tatze*. One of theſe *Tartars* went and found upon the Neighbouring Mountains four Plants of the *Gin-ſeng*, which he brought us entire in a Basket: I took one of them, and deſigned it, in its exact Dimenſions as well as I could

could poſſible do it; the Figure of which I here ſend you, and ſhall give you the Explanation of it at the end of this Letter.

The moſt eminent Phyſicians in *China* have writ whole Volumes upon the Virtues and Qualities of this Plant; and make it an Ingredient in almoſt all Remedies which they give to their chief Nobility; for it is of too high a Price for the common People. They affirm, that it is a Sovereign Remedy for all Weakneſſes occaſion'd by exceſſive Fatigues either of Body or Mind; that it diſſolves Pituitous Humours; that it cures Weakneſs of the Lungs and the Pleuriſy; that it ſtops Vomitings; that it ſtrengthens the Stomach and helps the Appetite; that it diſperſes Fumes or Vapours; that it fortifies the Breaſt, and is a Remedy for ſhort and weak Breathing; that it ſtrengthens the Vital Spirits, and increaſes Lymph in the Blood; in ſhort, that it is good againſt Dizzineſs of the Head and Dimneſs of Sight, and that it prolongs Life in old Age.

No Body can imagine that the *Chineſe* and *Tartars* would ſet ſo high a Value upon this Root, if it did not conſtantly produce a good Effect. Thoſe that are in Health often make uſe of it to render themſelves more vigorous and ſtrong: And I am perſwaded that it would prove an excellent Medicine in the Hands of any *European* who underſtands Pharmacy, if he had but a ſufficient quantity of it to make ſuch Tryals as are neceſſary, to examine the Nature of it Chymically, and to apply it in a proper quantity according to the Nature of the Diſeaſe for which it may be beneficial.

It is certain that it ſubtilizes, increaſes the motion of, and warms the Blood; that it helps Digeſtion, and invigorates in a very ſenſible manner. After I had deſigned the Root, which I ſhall hereafter deſcribe, I obſerved the ſtate of my Pulſe, and then took half of the Root, raw as it was and unprepar'd: In an Hour after I found

found my Pulſe much fuller and quicker; I had an Appetite, and found my ſelf much more vigorous, and could bear Labour much better and eaſier than before.

But I did not rely on this Trial alone, imagining that this Alteration might proceed from the Reſt that we had that Day: But four Days after, finding myſelf ſo fatigued and weary that I could ſcarce ſet on Horſe-back, a Mandarin who was in company with us perceiving it, gave me one of theſe Roots: I took half of it immediately, and an Hour after I was not the leaſt ſenſible of any wearineſs. I have often made uſe of it ſince, and always with the ſame Succeſs. I have obſerved alſo, that the green Leaves, and eſpecially the Fibrous part of them chewed, would produce nearly the ſame effect.

The *Tartars* often bring us the Leaves of *Gin-ſeng* inſtead of Tea; and I always find myſelf ſo well afterwards, that I ſhould readily prefer them before the beſt Tea. Their Decoction is of a grateful Colour; and when one has taken it twice or thrice, its Taſte and Smell become very pleaſant.

As for the Root of this Plant, it is neceſſary to boyl it a little more than Tea, to allow time for extracting its Virtue; as is practiſed by the *Chineſe* when they give it to ſick Perſons, on which occaſion they ſeldom uſe more than the fifth part of an Ounce of the dryed Root. But as for thoſe that are in Health, and take it only for Prevention, or ſome ſlight Indiſpoſition, I would adviſe them not to make leſs than Ten Doſes of an Ounce, and not to take of it every Day. It is prepared in this manner; The Root is to be cut into thin Slices, and put into an Earthen Pot well glazed, and filled with about a quarter of a Pints of Water *Paris* Meaſure: The Pot muſt be well covered, and ſet to boyl over a gentle Fire; and when the Water is conſumed to the quantity of a Cupful, a little Sugar is to be mixt with it, and it is to be drank immediately. After this, as much more Water

Water is to be put into the Pot upon the remainder, and to be boyled as before, to extract all the Juice and what remains of the ſpirituous part of the Root. Theſe two Doſes are to be taken, one in the Morning, and the other at Night.

As to the Places where this Root grows, becauſe you will ſee them marked in the new Map of *Tartary*, a Copy of which we ſhall ſend into *France*, I ſhall only obſerve here in general, that it is between the thirty ninth and forty ſeventh Degree of Northern Latitude, and between the tenth and twentieth Degree of Eaſtern Longitude, reckoning from the Meridian of *Peking*. There is there a long Tract of Mountains, which the thick Foreſts, that cover and encompaſs them, render almoſt unpaſſable. It is upon the declivities of theſe Mountains and in theſe thick Foreſts, upon the Banks of Torrents or about the Roots of Trees, and amidſt a thouſand other different ſorts of Plants, that the *Gin-ſeng* is to be found. It is not to be met with in Plains, Vallies, Marſhes, the bottoms of Rivulets, or in Places too much expoſed and open. If the Foreſt take Fire and be conſumed, this Plant does not appear till two or three Years after: It alſo lies hid from the Sun as much as poſſible; which ſhews that Heat is an Enemy to it. All which makes me believe, that if it is to be found in any other Country in the World, it may be particularly in *Canada*, where the Foreſts and Mountains, according to the relation of thoſe that have lived there, very much reſemble theſe here.

The Places where the *Gin-ſeng* grows are on every ſide ſeparated from the Province of *Quan-tong* (which in our old Maps is called *Leaotum*) by a Barrier of wooden Stakes which incompaſſes this whole Province, and about which Guards continually patroll to hinder the *Chineſe* from going out and looking after this Root. Yet how vigilant ſoever they are, their greedineſs after Gain incites

cites the *Chineſe* to lurk about privately in theſe Deſerts, ſometimes to the number of two or three Thouſand, at the hazard of loſing their Liberty and all the fruit of their Labour, if they are taken either as they go out of or come into the Province.

The Emperor having a mind that the *Tartars* ſhould have the Advantage that is to be made of this Plant rather than the *Chineſe*, gave Orders this preſent Year 1709. to Ten Thouſand *Tartars* to go and gather all that they could of the *Gin-ſeng*, upon condition that each Perſon ſhould give his Majeſty two Ounces of the beſt, and that the reſt ſhould be paid for according to its weight in fine Silver. It was computed, that by this means the Emperor would get this Year about Twenty Thouſand *Chineſe* Pounds of it, which would not coſt him above one fourth part of its value. We met by chance with ſome of theſe *Tartars* in the midſt of thoſe frightful Deſerts: And their *Mandarins*, who were not far diſtant out of our way, came one after another, and offer'd us Oxen for our ſubſiſtence, according to the Commands they had received from the Emperor.

This Army of Herbariſts obſerved the following Order. After they had divided a certain Tract of Land among their ſeveral Companies, each Company, to the number of an hundred, ſpreads itſelf out in a ſtraight Line to a certain fixt place, every Ten of them keeping at a diſtance from the reſt. Then they ſearched carefully for the Plant, going on leiſurely in the ſame Order; and in this manner in a certain number of Days they run over the whole ſpace of Ground appointed them. When the time is expired, the *Mandarins*, who are encamp'd with their Tents in ſuch Places as are proper for the ſubſiſtence of their Horſes, ſend to view each Troop, to give them freſh Orders, and to inform themſelves if their Number is compleat. If any one of them is wanting, as it often happens, either by wander-

ing out of the way, or being devoured by wild Beasts, they look for him a Day or two, and then return again to their Labour as before.

These poor People suffer a great deal in this Expedition. They carry with them neither Tents nor Beds, every one being sufficiently loaded with his Provision, which is only Millet parched in an Oven, upon which he must subsist all the time of his Journey. So that they are constrained to sleep under Trees, having only their Branches and Barks, if they can find them, for their Covering. Their *Mandarins* send them from time to time some pieces of Beef, or such Game as they happen to take, which they eat very greedily and almost raw. In this manner these Ten Thousand Men passed six Months of the Year; yet, notwithstanding their fatigues, continued lusty, and seemed to be good Soldiers. The *Tartars*, which were our Guard, did not fare better, having only what remained of an Ox, that was killed every Day, and had first served fifty Persons, for their subsistence.

To give you next an Idea of this Plant, which the *Tartars* and *Chinese* put so great a value upon, I shall explain the Figure here sent you, which I drew with the greatest Exactness that was possible.

Tab. V. *A.* Shows the Root of the Plant; which, when wash'd, was white and a little rugged and uneven, as the Roots of other Plants generally are.

B. C. D. represent the Length and Thickness of the Stalk; which is smooth and pretty round, of a deepish red colour, except near its beginning at *B.* where it is whiter, by reason of its nearness to the Ground.

D. is a sort of Knot or Joynt, made by the shooting out of four Branches, which all rise from the same Center, and divide from another at equal distances and at the same height from the Ground. The underside of the Branch is green, mixt with white; the upper part

The plant in the Figure is reduced a half in Naturals Size.

part is much like the Stalk, of a deep red, inclining to the colour of a Mulberry. Theſe two Colours gradually decreaſe and unite together on the ſides in a natural mixture. Each Branch has five Leaves, as repreſented in the Figure. It is remarkable, that theſe Branches ſeparate from each other at equal diſtances, as well in reſpect of themſelves as of the Horizon, and make with their Leaves a circular Figure nearly parallel to the Surface of the Ground.

Tho' I have finiſh'd the deſign but of half of one of the Leaves at *F.* yet any one may eaſily conceive and perfect the reſt in the ſame manner. I do not know that ever I ſaw Leaves ſo large as theſe that were ſo thin and fine: Their Fibres are very diſtinguiſhable; and on the upper ſide they have ſome ſmall whitiſh Hairs. The Skin between the Fibres riſes a little in the middle above the level of the Fibres. The colour of the Leaf is a dark green above, and a ſhining whitiſh green underneath. All the Leaves are ſerrated, or very finely indented on the Edges.

From *D.* the Center of the Branches, there riſes a ſecond Stalk *D. E.* which is very ſtraight and ſmooth, and whitiſh from Bottom to Top, bearing a Bunch of round Fruit of a beautiful red Colour. This Bunch was compoſed of twenty four Berries, two of which I have here drawn, marked *9. 9.* The red Skin that covers the Berry is very thin and ſmooth: It contains within it a white ſoftiſh Pulp As theſe Berries were double (for they are ſometimes found ſingle) each of them had two rough Stones, ſeparated from one another, of the ſize and figure of our common Lentils, excepting that the Stones have not a thin Edge like Lentils, but are almoſt every where of an equal thickneſs. Each Berry was ſupported by a ſmooth, even, and very fine Sprig, of the colour of thoſe of our ſmall red Cherries. All theſe Sprigs roſe from the ſame Center, and ſpreading

exactly like the Rays of a Sphere they make the Bunch of Berries that they bear of a circular form. This Fruit is not good to eat. The Stone is like the Stones of other common Fruit; it is hard, and incloſes a Kernel. It is always placed upon the ſame Plan or Level with the Sprig that bears the Berry. From whence it is, that the Berry is not round, but a little Flat on each ſide. If it be double, there is a kind of depreſſion, or hollow Place in the middle, where the two Parts unite. It has alſo a ſmall Beard at Top, diametrically oppoſite to the Sprig on which it hangs. When the Berry is dry, there remains only a ſhrivel'd Skin that ſticks cloſe to the Stones, and is then of a dark red or almoſt black Colour.

This Plant dyes away, and ſprings again every Year. The number of its Years may be known by the number of Stalks it has ſhot forth, of which there always remains ſome Mark; as may be ſeen in the Figure by the Letters *b. b. b.* &c. From whence it appears that the Root *A.* was ſeven Years old, and that the Root *H.* was fifteen.

As to the Flower, not having ſeen it, I can give no Deſcription of it. Some ſay that it is white and very ſmall: Others have aſſured me, that this Plant has none, and that no Body ever ſaw it. I rather believe, that it is ſo ſmall, and ſo little remarkable, that they never took Notice of it: And what confirms me in this Opinion is, that thoſe that look for the *Gin-ſeng*, having regard to and minding only the Root, commonly neglect and throw away all the reſt of the Plant as of no uſe.

There are ſome Plants, which beſide the Bunch of Berries I have deſcribed, have alſo one or two Berries like the former, placed an Inch or an Inch and a half below the Bunch. And when this happens, they ſay, if any one takes Notice of the Point of the Compaſs that theſe Berries direct to, he cant't fail of finding the Plant at

at ſome Paces diſtant that way, or thereabouts. The colour of the Berries, when the Plant has any, diſtinguiſhes it from all others, and makes it remarkable at firſt Sight: But it ſometimes happens that it bears none, tho' the Root be very old; as that marked by the Letter *H.* had no Fruit, tho it was in its fifteenth Year.

They having ſowed the Seed in vain, without its producing any Plant, might probably give occaſion to this Story, which is current among the *Tartars*. They ſay that a Bird eats it as ſoon as it is in the Earth, and not being able to digeſt it, it is purified in its Stomach, and afterwards ſprings up in the Place where it is left by the Bird with its Dung. I rather believe that the Stone remains a long time in the Ground before it ſhoots out any Root. And this Opinion of mine ſeems the more probable, becauſe there are found ſome Roots, which are not longer and not ſo big as ones little Finger, tho' they have ſhot forth ſucceſſively at leaſt ten Stalks in as many different Years.

Tho' the Plant I have here deſcribed had four Branches, yet there are ſome that have but two, others but three, and ſome that have five or ſeven; which laſt are the moſt beautiful: Yet every Branch has always five Leaves, as well as this here figured, unleſs the number has been diminiſhed by any Accident. The Height of the Plants is proportionable to their Bigneſs and the number of their Branches. Thoſe that bear no Fruit are commonly ſmall and very low.

The Root, the larger and more uniform it is, and the fewer ſmall Strings or Fibres it has, is always the better: On which account that marked with the Letter *H.* is preferable to the other. I know not for what reaſon the *Chineſe* call it *Gin-ſeng*, which ſignifies *the Repreſentation* or *Form of Man*: Neither I myſelf, nor others who have ſearched and inquired into it on purpoſe, could ever find it had any reſemblance to the ſig-

nification

nification of its Name; tho' among other Roots there may now and then be found ſome which by accident have very odd Figures. The *Tartars* with more reaſon call it *Orhota*, which ſignifies *the Chief of Plants*.

It is not true that this Plant grows in *China*, as Father *Martini* affirms from the Authority of ſome *Chineſe* Books, which make it to grow on the Mountains of *Tong-pinfou* in the Province of *Peking*. They might eaſily be led into this miſtake, becauſe that is the Place where it firſt arrives when it is brought from *Tartary* into *China*.

Thoſe that gather this Plant preſerve only the Root, and bury together in ſome certain place in the Earth all that they can get of it in ten or fifteen Days time. They take care to waſh it well, and cleanſe it with a Bruſh from all extraneous Matter. Then they dip it into ſcalding Water, and prepare it in the fume of a ſort of yellow Millet, which communicates to it part of its Colour. The Millet is put into a Veſſel with a little Water, and boyles over a gentle Fire; the Roots are laid upon ſmall tranſverſe pieces of Wood over the Veſſel, and are thus prepared, being covered with a Linnen cloath or ſome other Veſſel placed over them. They may alſo be dryed in the Sun, or by the Fire; but then, tho' they retain their Virtue well enough, yet they have not that yellow Colour which the *Chineſe* ſo much admire. When the Roots are dryed, they muſt be kept cloſe in ſome very dry Place; otherwiſe they are in danger of corrupting, or being eaten by Worms.

I wiſh the Deſcription I have here given of the *Ginſeng*, ſo highly eſteem'd in this Empire, may pleaſe you, and thoſe to whom you ſhall impart it. We are now going into *Tartary*, to finiſh the Map of that Country, having ſtill the *Weſt* and *North Weſt* Part of it to do. I will ſend you as ſoon as poſſible

ſible the Map of the Province of *Peking*, by Father *Martini* called *Pekeli*, and by the *Chineſe Tcheli* or *Lipafou*. I am, *&c.*

JARTOUX.

XXVI. *An* Examen *of the* Chalybeat, *or* Spa-Waters, *called by the* Germans Acid *or* Sowre-Brunns, *or* Fountains; *but prov'd to be of a contrary Nature, that is,* Alkali's. *By Dr.* Fred. Slare, *Fellow of the Coll. of Phyſicians and Royal Society.*

I Have, for many Years paſt, had more than a bare Suſpicion, that Phyſicians and Learned Perſons had impos'd upon themſelves and others Erroneous Notions about the Nature and Properties of thoſe Mineral Waters, which are of the *Chalybeat* or Iron Species. *Germany* abounds much with theſe Waters, and they beſtow one general Name upon them, and call them *Sowre Brunns*, that is, ſower Wells or Springs of Water. The Learned *Germans*, when they name them, or write of them, do call them *Acidulæ*, *ex. Gr. Spadenſes*, *Swalbaccenſes vel Pyromontanæ*, *&c.* *Henricus ab Heers* agrees with *Vitruvius*, *Fallopius*, and the Sagacious *Helmont*, and other Men of great Fame, in juſtifying the Acidity of the ſeveral ſorts of *Spa* and *Chalibeat* Waters; but, not being ſatisfied with their Reaſons, aſſigns others; and after a tedious and obſcure Harangue, concludes, That they owe their Birth and great Virtues to Vitriol and Sulphur. He obſerves, that Vitriol and Sulphur are found in the Glebe or Earth, from whence theſe Waters do ſpring; but yet does

does not give us one Proof or Experiment of his having found any real Vitriol, or true Sulphur, or any Acidity in these Waters; but fills his Book with Imaginations, and Quotations, exposing other Mens Ignorance.

Dr. *Jordis*, a Fellow of the *Royal Society*, with whom I kept a Correspondence for above thirty Years past, practised Physick at *Francford*, and often at *Swalbac* in Summer-time: I desired him to examine those Waters, and give me an account of the Contents of that *Sowr-Brunn* or *Acidula* (so much celebrated for its Virtues, and Concourse of Persons of the greatest Quality.) He gave me an Account of some *Ocres*, or Ferrugineous Parts, which he calcin'd and tortur'd in the Fire, to make them confess their Sulphur Original; but in all his Experiments did not satisfy me that the Water held one Drop of an Acid by Distillation, *&c.*

That which gave me the first Suspicion, that the *Chalybeat* Waters did not contain any rough, or Vitriolic, or Acid Salts in them, proceeded from an accidental Use of a strong Iron Water, in which I dissolved Soap, and found it lather and wash my Hands well, and then I us'd a Wash-ball and shav'd with it; and try'd several other Waters of this sort, which did the same, and much better than some Pump-Waters.

I. I consulted my Palate, and try'd whether I could discover any Sharpness or Acidity in our *English* Steel-Waters at *Tunbridge*, at *Black-Boy* in the Parish of *Franfield* in *Sussex*, *Hampsted*, *Sunning hill* in *Berkshire*, &c. but I was so far from discovering any such Thing, that these Waters seem'd rather to leave a sweetish Flavour or farewell behind: Thus many Alkaly Salts, if nicely examin'd (of the fix'd kind) have affected my Taste.

II. I made Experiments with several sorts of such Spirits as are apt to ferment with Acids; such as Spirit of *Hart's-horn*, of *Sal Armoniac*, *&c.* but these made no Ferment,

Ferment, nor any Motion or Change in these Waters.

III. I consider'd the Diseases in Human Bodies, which these Waters were prescrib'd, by Physicians, to cure; that they were often such as proceeded from Sharp, Acid, or Acrimonious Causes, as *Cardialgiæ* or Heart-burnings, sower Vomitings, Corrosive *Diarrhœa's*, Colicks from Scurvies and Stranguries; and that for these Distempers sweetning and Alkalisate Remedies are made use of.

IV. I consider these Waters as containing in them the Properties of Iron; and I find by experience, that it is most opposite to Acids, being one of their great Correctors, and therefore rather to be esteemed an Alkali.

1. Take some filings of Iron, perhaps a Dram, and pour on them about an Ounce of the milder Acids, such as Vinegar, Verjuice, or the Juice of Lemons, and it will destroy the sharpness of these Juices: Or if you pour on these filings Mineral Acids, as the very corrosive Spirit of Nitre, or of Salt, or what is call'd Oil of Vitriol, they will immediately lose their Acidity, be disarm'd of their sharp Points, and by Evaporation give a Salt that will taste sweetish, and is by Chymists call'd *Saccharum Martis*, if duly prepared; which is safely given inwardly, and is esteemed a good altering Medicine.

2. Steel beaten to a fine Powder is, without any farther Preparation, given inwardly with great Success for Stomachic Diseases, as in the Green-Sickness, Hypochondriac and various other Acid and Acrimonious Disaffections.

V. I consider'd Milk to be a very proper and obvious Subject to bring this Controversy to a plain and unquestionable decision. I made this Experiment with all possible exactness: I first prov'd the Chalybeat Waters, more particularly the Spaw-Waters, by trying whether

they tinged with Galls. Theſe being very good, I put part of the Waters to cold Milk; ſome I only made luke-warm, and ſome I boil'd together, in equal proportions: But they were ſo far from affording any Curd or Coagulation, that they continued ſeveral Days without being ſowr.

Since Mineral Waters, eſpecially thoſe that are Chalybeat, are of ſuch important uſe in Phyſick, and have gain'd amongſt us ſo juſt a Reputation for their excellent Virtues, and are the greateſt refuge in very potent and obſtinate Diſeaſes; this has made me judge it a work not unacceptable to Virtuoſo's, eſpecially thoſe of the faculty of Phyſick, to have this Medicine fairly examin'd, its genuine Properties aſſerted, and what was call'd an Acid to be demonſtrated an *Alkali*. Is it not a ſort of Juſtice due to the World, that the *Germans*, who ſent us over theſe Waters, with this falſe Character of Sowre Waters, ſhould baniſh this miſguiding Term from their *Spa's?*

It is from this miſtake, that their Phyſicians do prohibit the uſe of all manner of *Lacticinia*, as if they were as noxious as deadly Poiſons, whilſt they are in a courſe of their Medicinal Waters.

Since this prejudice has prevail'd very much amongſt moſt of our Water Drinkers in *England*, I do atteſt that I have frequently advis'd, in ſome Caſes, Milk to be given daily in the Evening, thro' a whole courſe of Steel-Waters, with good *Effect*: Nay, I do affirm, that ſome others could not bear the Waters without having a third part of Milk or more mix'd with 'em, and have continued 'em ſo for many Weeks with good advantage: Nor do I find the leaſt reaſon to prohibit the uſe of Milk in a courſe of *Bath* Waters, having been here above a Year and half, making the beſt Scrutiny I can into the Properties, Virtues, and Vices (if they have any) of theſe Waters: But of theſe Waters I may probably give ſome Account hereafter.

VI. Since

VI. Since our Experiments discover, that those Things which are of a sweetning *Alkalisate* Nature, do so very well agree with these Mineral Waters, it will appear by the following Experiment that *Acids* do very much disagree.

1. I put but one drop of Oil of Vitriol to a large Glass full of strong *Spa-Waters*, which before the addition of this *Acid* did give a deep purple to the Solution of Galls; but now would not give the least Tincture, tho' I put in four times as much of the Galls. From hence I conclude, that the Virtues of the *Chalybeat* Ingredients, which I take to be the Life and Soul of these Waters, were so far bound up or destroy'd as to have lost their Cordial or corroborating Faculty; and that the Bile or Gall in the Humane Bowels could not be able to separate the *Chalybeat* (which are the only Medical) Particles, and mix them with the Chyle, in order to answer any End in Physick.

Let this be a caution to those that design to make these Waters pass better by Urine, that they do not make use of any *Acids*; it being a common Practice to use Spirit of Vitriol, *Spiritus Nitri dulcis, &c.* as a Diuretick: Unless it should so happen that they have a design to take off, and divest them of their warm cordial or altering Power, and so to bring them near to common Water; which I must confess we are forc'd to do, especially in the use of *Bath* Waters, in some hot Inflammatory Cases.

2. I shall conclude with one short Experiment in favour of our *Alkalis*; That if you put any *Alkali* Salt, volatile or fix'd, such as Volatile Salt of Hartshorn, or of *Sal Armoniac*, or fix'd Salt of *Tartar*, of Wormwood, or any other true *Alkali*, you will then destroy the above-nam'd Acid Spirit, recover the virtue of the Waters, and dispose them to give their Tincture as they used to do in their Natural State.

XXVII. *Part of a Letter from* Francis Nevill, *Esq; to the Right Reverend the Lord Bishop of* Clogher, *containing a Relation of several Urns and Sepulchral Monuments lately found in* Ireland.

Belturbet, Decemb. 9. 1712.

My Lord,

WHEN Bishop *Hopkins* was Bishop of *Raphoe*, there was a Whale cast on the Island *Dowey*, which belongs to the Bishoprick; which Island is about Ten Miles beyond *Castle-doe*. This Whale carried me into those wild Parts of the County of *Donnegal*; and whilst I was in that Island, and in another adjacent call'd *Innis Bofin*, which did likewise belong to the Bishoprick, I saw several Whales playing for several Days together in that Sea. The Whale that was cast ashore was but a small one, 50 Foot long: It was of that kind that hath the Whalebone in the Roof of the Mouth.

When I came back to *Castle-doe*, I was told of an Urn that was found within a Mile of that Place; where I went, and met with the Man that had found the same. He carried me into a little Island, surrounded with Bog, where his Cabin stood: The Island was very dry, light, sandy Ground, which he had plowed: The Plow running in some Places over flat Stones cover'd above with Earth, made the Man curious to search; and the rather because he was a Clothier by Trade, he wanting a flat

a flat Stone to make him a Hot-preſs (for ſo they do, who want an Iron Plate to Preſs their Cloth on.) In taking up the Stone he found a Cavity under it, which I believe may be call'd a Sepulcher, or Tomb: In it he found an Urn, which he broke, becauſe nothing was in it but Bones and Aſhes. In the ſame Tomb there were ſome Bones of one about ten or twelve Years old. The Tomb ſtood E. and W: the Urn was found in the Weſt end; it was the ſmalleſt Urn I have ſeen, but the Cavity wherein it lay was near 5 foot long, two foot and a half broad, and about the ſame depth: It was made up of ſix courſe flag Stones, *viz.* one on each ſide, one at the Head, another at the Foot, one above and one below: The Bones were much waſted, and but few of them. Whilſt I ſtaid there, we opened three more, which the Man quickly found out, becauſe he had made his marks by the Plow. Theſe three were much larger than the former; one of the three was near the Center of the Iſland, and biggeſt of all; but all alike made. There was no Urn in either of them, and but Bones in one, which was the biggeſt. The Bones ſeem'd to be of a Man of an ordinary Stature: If there had been any in the other two they were conſumed. The Man told me he did believe there were more; but I had not time to make a further ſearch. This ſeem'd to be a common Burying Place, there being ſo many of that kind of Tombs in it; and one may gather from thence, that at that time they burnt ſome, and others they did not; becauſe here was an Urn found with Bones burnt, and there were Bones unburnt. This Iſland is ſituate on an *Iſthmus* about half a Mile over, between the Bay of *Dunfannaghan* and the Logh of *Kinnevier*, near to Lieut. General *Hamilton*'s Houſe.

There were three the like Urns found in three ſmall Stone Cheſts, under a great Kern, or heap of Stones, near to *Ban* Bridge in the County of *Downe*; which

heap,

heap being removed to help to build that Bridge, they were discover'd.

There were the like Urns found near *Omagh* in the County of *Tyrone*, in the like Chests, under two heaps of Stones, which were removed to build some Houses in the said Town.

There was one Urn found in a little sandy Hill near *Cookston* on the Road to *Lisson* in the County of *Tyrone*: It was covered with a great rude Lime-Stone; which being removed in order to made Lime, the Urn was discovered in a Hole encompass'd with six Stones of equal bigness, which made a Hexagon, in which the Urn stood. The Water that had fallen on the Urn from the Lime-Stone, or the Air condensing, had petrify'd, and made a Stony crust on the outside thereof. There were some Bones and Ashes found in it. Sir *Robert Staples* had the Urn and gave it to me, which I designed for the College; but the Fellow I intrusted to carry it broke the same, and so my design fail'd.

At *Dungannon* in the same County, a Servant of mine working in a Sand-Pit near the Town, struck on an Urn, which was the largest I ever saw. It was found with the Mouth whelm'd downward, the Bones and Ashes on a flat Stone, and the Urn covering them: It would have held about three Quarts, and had been better burnt in the Fire than they usually are: But this met with the fate of others; it was broke by the Spade before the Man was aware, and had no Stones about it as the others, but was bury'd in the Earth about a Foot under Ground. As they dug the Bank for Sand, the Place where the Carcass was burnt was discovered by the Coals and pieces of Bones, which spread a great way, about a foot under Ground.

Near to the same Town, on Mr. *Knox*'s Estate, in a Town-land call'd *Killimeille* (which in *English* is Lowsey Cell, or Lowsey Burying-Place) there are on the top

top of the Hill two Circles of dry Stone about 20 Yards in Diameter each; they meet on two ſides and make the Figure of Eight. I ſuppoſe when firſt form'd they made a dry Wall for two diſtinct Burying-Places, one for the Men, the other for the Women; or rather two Repoſitories for Urns. One *James Hamilton*, who farm'd the Ground from Mr. *Knox*, wanting Stones to build a Houſe, drew off moſt of them from this Place. When he had enter'd within one of the Circles, he found three Urns in three ſeveral Holes, ſet about with ſix Stones, and cover'd with flat Stones, and other Stones thrown on the Top; he broke what he found, not finding what he expected. Mr. *Knox* and I went there to ſee the Place, and ſaw the Holes and broken Urns; but the Man's Houſe being finiſh'd, there were no more found; but I am perſwaded there are many more, becauſe theſe three were found near together. The Poor Man met with an Accident of Fire in his Mault-Houſe, which did him great Damage; the *Iriſh* attributed it to his taking thoſe Stones to build his Houſe, which they call'd Holy, tho' they knew nothing of its being a Burying-Place till thus diſcover'd.

On the ſame Hill about thirty Yards diſtance to the Eaſtward of theſe Circles, upon ſearch we found the Altar whereon they uſed to burn their Dead, over-grown with Earth and green Sod, which we cauſed to be uncovered: It was made of dry Stone, eight Foot long and four Foot broad, the Coals and Bones freſh among the Stones, and the Stones burnt with Fire. At the Eaſt end of this Altar there was a Pit, which was likewiſe over-grown with Earth and green Sod; which we open'd, and found it to be the Receiver, where they ſwept in all that remain'd on the Altar after Burning. We ſearch'd deep, and the ſubſtance was all alike, black and greaſy: It had tinged the Hill in a ſtrait

ſtrait Line from the Pit to the bottom of the Hill; and diſcover'd it ſelf to our View, the Land being then plough'd.

I ſhall add only one more that I have ſeen, beſides the many that are yearly diſcover'd; to ſhew that this was the Way the *Iriſh* had for Burying in Heathen time, though the People know nothing of it by Hiſtory or Tradition.

In the County of *Farmanagh*, upon a Hill over *Wattle*-Bridge, there has been a mighty Heap of Stones, the Baſis incircled with very large Stones ſtanding on end. This Heap has been removed to pave our Ways, and build that Bridge; under which there were ſome Urns found in Stone Coffins, and I believe there are ſome remaining. Theſe were, I ſuppoſe, the Urns of ſome great Perſonages. The Heap was ſo big, and the Stones about it ſo large and ſo many, that it coſt great Pains to bring them there: Or perhaps there might have been a Fight there, and ſome of the great Officers might have their Bones interr'd there, and the Army made that great Work over them; for it ſeem'd to be a Work done by many. I have ſeen ſeveral ſuch Heaps in this Kingdom, and I doubt not but they are all Monuments for the Dead. I am, *&c.*

FRAN. NEVILL.

XXVIII. *An Extract of a Letter, giving an Account of a large number of Urns dug up at* North Elmham *in* Norfolk. *Communicated by* Peter Le Neve, *Esq*; Norroy, *F. R. S.*

Docking, July 16. 1711.

SIR,

I Was last Week at *Gressenhall*, where I was inform'd of an unusual Number of Urns lately discover'd in the Neighbourhood of that Place; which being a Curiosity relating to a part of Learning, which you are so well acquainted with, and so good a judge of, I shall take the Liberty of giving you a more particular Account of it, which I promise my self will not be unwelcome to you.

In the Parish of *Elmham*, about half a Mile from the Town (or better) there is a Close called the *Broom close*, lying on the West-side of the Road from *Elmham* to *Beetly*, and belongs to Mr *Harvy* of *Buckenham*. About *Candlemass* last some Labourers were repairing the Fence on the South-side of the Close, and in the bottom of the Ditch accidentally pitch'd upon a Pot, which they expected to have been full of Money, and fell to ransacking; but finding nothing but Dust and Ashes, went to their Work again, and digging on found two or three more; but (to their great Grief and Disappointment) the Contents the same. When they came home at Night (the value of their Prize giving them no Occasion to conceal their Discovery) they publish'd what they had found, and in a little time were inform'd that

they were Urns: The Report of which put ſome Perſons of more Curioſity upon a further Search; and digging firſt under the Hedge, afterward further into the Cloſe, found great quantities of them, and ſeveral very near together. There is one Man in the Pariſh who has been chiefly employed in this Search for ſeveral People, and the Number that he has taken up ſince the firſt Diſcovery, falls ſhort very little of 120. and yet the compaſs of Ground turn'd up on this Occaſion does not amount to more than a Rood of Land (*i. e.* One quarter of an Acre.) The Cloſe where they are found is high Land, and this Place the higheſt part of it; the Soil a ſharp Gravel, and very dry, and lies next to a Highway. As for the Urns themſelves, they are generally of the ſame Shape, but of very different Sizes.

The Shape of theſe is conformable to the Repreſentations uſually exhibited in the Deſcriptions of Urns; *viz.* the Bottom narrow, a little flatted (and in ſome quite round) wider upward; the Top contracted to a narrow Mouth: The Earth courſe, the Work rough and uneven, but generally well burnt; ſome of them ſlightly wrought and indented (the Work expreſſes very little Skill or Care) and ſome plain, of which laſt ſort I have one perfectly entire (not yet open'd)

The Size is various; ſome of the Capacity of a Quart, ſome two, ſome three Quarts, and one I have (unopen'd yet) that I believe will contain a Gallon.

The Pots are very tender when they come firſt out of the Ground, and frequently ſuffer by the Wounds of the Spade: They are moſt of them broken (more or leſs) in the taking of them up, and hardly any that have not their Mouths broken; of which many of them ſeem to be done, as they lie in the Ground, by the weight of the Earth preſſing upon them, or the Feet of Horſes going over them, as appears by the broken pieces of ſeveral of them found a good way down among the Earth.

The

The Urns are found at uncertain Depths; ſome very near the Surface, ſome two, ſome three Spits deep, which is the deepeſt any Body has taken the Pains to dig hitherto.

As for the Contents (by what I can hear) they are generally the ſame. I have open'd ſeveral of them, and found in all of them plenty of pieces of broken Bones, ſome Black with burning, and ſome turn'd to Aſhes, with ſome pieces of courſe Glaſs run and ſticking to the Bones; which whether it proceeded from any thing of that kind burnt with the Body, or only the ſandy Earth vitrified with the ſtrength of the Fire (as I am inclined to think) is doubtful. Beſides, I found ſome pieces of Braſs, ſome run, ſome much burnt, and ſome not injur'd, with ſome pieces of Iron, but ſo decay'd with ruſt, that their Figure or Uſe is hard to judge of. I have ſome Knives and other odd things, but much eaten and decay'd with Ruſt: But the Braſs, which is not burnt to pieces, remains generally firm and entire. One thing is remarkable, we find a great many pair of ſmall Nippers (ſuch as we pull out Hairs with) commonly of Braſs; and moſt of them ſo perfect and good, that the Edges are full ſquare, and the Spring as ſtrong as any we can make of the Mettal. Theſe are chiefly the particulars of what we find: But as for Coins (which of all things were moſt to be wiſhed for) we meet with none. I hear of two in the Hands of a Perſon of *Elmham*, but had not an opportunity of examining them: But when they were found or taken up I can't tell. I have one found t'other Day in an Urn, but very imperfect; what remains of the Impreſſion looks more like *Britiſh* than *Roman*; but by the ſhape of the Coin and Mettal it ſhould be the latter, tho' I think not eaſie to determine.

I have here given you an account of our Diſcovery, which I am ſenſible would afford ground for ſeveral

Remarks; but my design being only to give you a Narrative, and not to Criticize or make Observations, I leave that Province to those who are better able to make a Judgment of these Circumstances. And as it is pretty sure the Urns are *Roman*, and consequently that the Number must denote a Station or Colony of that People: So I should be glad to hear your Thoughts and Opinion of the Place where that Station was appointed, or Colony planted; upon what Occasion, and at what time it might be placed there. I am, *&c.*

Note, *Two of these Urns, of different sizes, with pieces of Bones, Ashes, Teeth, and part of an old Brass Instrument (supposed to have been a* Roman Fibula*) contained in them, were presented to the* Royal Society *by Mr* Le Neve, *and are in their Repository at their House in* Crane-Court *in* Fleetstreet.

XXIX. *Some Observations upon* Lough-Neagh *in* Ireland. *In a Letter from* Francis Nevill *Esq; to the Lord Bishop of* Clogher.

Belturbet, Feb. 12. 1712-13.

My LORD,

I Hope it will not be amiss to give your Lordship an Account of what I have heard and observ'd of our considerable Lake *Lough Neagh*, so much talk'd of for its changing Wood into Stone, which Report is too much credited by some, who do yet live near the *Lough*; but I can assure your Lordship, there is no such petrifying Quality in that Water. I lived fourteen Years in *Dungannon*

gannon, within five Miles of it, and was very often there, about the Skirts, for many Miles, and in a Boat upon it ſeveral times. I have taken the Survey of a great part of the Shore thereof, when I drew the Scheme for making the *Glan-Bog* Navigable, from the *Lough* thro part of the upper *Bann* to *Newry*; which was done at ſuch a time as the Waters were very low, and a large Strand left in ſeveral Places: And many Trees lay in the Verge of the *Lough*, which I believe might ſome of them have lain there ſome hundreds of Years, which had been overtun'd by the *Lough*'s encroaching on the Land, where great Woods had grown; and many Roots of great Trees were ſtanding in their proper Places, where the Water had prevail'd on the Land, and no Alteration in the Wood at all, but it was firm, ſound Wood, without any Petrifaction.

I have had an occaſion, among other Things, to talk to Mr. *Brownlow* upon this Subject, a great part of his Eſtate in *Ardmagh*, lying contiguous to the *Lough*; and he told me, that he did believe that there was not any petrifying Quality in the Water; for that he had made ſeveral Tryals, and had order'd Holly Stakes to be driven into the Ground within the Verge of the *Lough*, and that ſome of them continued there many Years, but that he found no Alteration.

Yet notwithſtanding all this, there has been great quantities of ſuch ſort of Stone, like unto Wood, found upon the Strand after great Floods and Storms of Wind, which have put the *Lough* into a Ferment; the Waves breaking down the Banks, incroaching on the Land, and tumbling over Trees, by which Incroachment this ſort of Stones are diſcover'd: And if ever they were Wood, they were petrify'd by the Earth, and not by the Water; of which kind I have ſeen ſeveral Pieces big and little, ſome like Oak, ſome Aſh, and ſome like Holly, with Bark, Grain and Knots like Wood; ſo that any by

the

the Eye would judge it Wood, till they come to try it. I had a Piece about ſixteen Inches long, that look'd as if it had been a great Chip cut out of the ſide of an Oak-Block, with the Bark on it; and in cutting ſuch Chips, there happens generally ſome Shakes or Flaws in ſuch large Chips, ſo that there will be a Separation of Parts at one end, and they remain firm at the other, as it was in this. I could have rais'd ſeveral of ſuch Splinters of this large Chip, ſome bigger and ſome leſs; and when ſo raiſed, they would have flap'd down as though they were a Spring. Some of thoſe Stones would appear at one end as if rotten, and decayed Wood; but trying it, it was as much Stone, as any other Part.

Now as to the Lake itſelf, your Lordſhip has ſeen it, and I may forbear to give your Lordſhip an Account of the Boundaries thereof: However, it is reputed to be Twenty four Miles long, and Twelve Miles broad, and Navigable from *Charlemount* to *Portlenoue*, which is about Thirty five Miles. It does not abound with many ſorts of Fiſh, but thoſe that are are very good, ſuch as Salmon, Trout, Pike, Breame, Roch, Eels and Pollans, with which laſt it does abound: The *Engliſh* call them freſh Water Herrings, for want of another Name; for Pollan is an *Iriſh* Name. They catch them in the Summer with Seives, as they do Herrings, and they are a great Relief to the Poor, being very cheap: They are much in ſhape and bigneſs like to the largeſt Smelts, full of very large bright Scales, and pleaſant Meat, being eat freſh. Theſe were ſuppoſed to be a peculiar Fiſh to that Lake; but ſince I came here, I find *Lough Earne* has the ſame ſort, but not in ſo great Plenty. They are generally caught here in their Eel-Nets, running to the Sea; ſo that I am of Opinion, that they are that ſort of Fiſh that is caught in the Sea, or between the freſh and Salt-Water, call'd Shads; and that the large ones come from the Sea, as the Salmon doth; and leave their Spawn

Spawn in the *Lough*; which, when they grow to be big, go to the Sea, and there come to their full Growth: And that which confirms me in my Opinion is, that at the Salmon Fishing at *Colraine*, they catch many of the large ones going up to the *Lough*. There is one sort of Trout in *Lough Neagh* very large: I have seen one weigh thirty Pound weight; and the largest Salmon that I ever saw weigh'd not more than Thirty five. This sort of Trout the *Irish* call a *Budagh*.

That there is some Healing Quality in the Water of this *Lough*, is certain; but whether diffus'd through all Parts thereof is not known, nor pretended. There is a certain Bay in it, call'd the *Fishing-Bay*, which is about half a Mile broad: It is bounded by the School-lands of *Dungannon*, hath a fine Sandy Bottom, not a Pebble in it, so that one may walk with safety and ease from from the Depth of his Ankle to his Chin, upon an easy Declivity, at least Three hundred Yards before a Man shall come to that Depth. I have been in it several times, when Multitudes have been there, and at other times; and I have always observ'd, that as I have walk'd, the Bottom has chang'd from Cold to Warm, and from Warm to Cold, and this in different Spots through the Bay. Several have made the same Observation.

The first Occasion of taking Notice of this Bay for Cure, happened to be no longer ago than in the Reign of King *Charles* the Second, and was thus. There was one Mr. *Cunningham*, that lived within a few Miles of the Place, who he had an only Son grown to Man's Estate. This young Man had the Evil to that Degree, that it run upon him in eight or ten Places: He had been touch'd by the King, and all Means imaginable us'd for his Recovery; but all did no good, and his Body was so wasted, that he could not walk. When all Hopes of his Recovery were passed, he was carried to the *Lough*, where

where he was washed and bathed; and in eight Days time, bathing each Day, all the Sores were dry'd up, and he became cured, and grew very healthy, married, begot Children, and liv'd nine or ten Years after. This Account I had from Capt. *Morris*, and his Brother, who were Eye-witnesses, and at whose House the young Man lay, while he continued to bathe there. After so remarkable a Cure, many came there, who had running Sores upon them, and were cured after a little time. The Natives thought it could not do well, but upon some particular Time appropriated for that Service; and now great Crowds come there on *Midsummer-Eve*, of all sorts of Sick; and sick Cattle are brought there likewise and driven into the Water for their Cure; and People do believe they receive Benefit. I know it drys up running Sores, and cures the Rheumatism, but not with once bathing, as People now use it; and the drinking the Water I am told will stop the Flux. I look upon it to be one of the pleasantest Bathing Places I ever saw. I am, *&c.*

FRAN. NEVILL.

XXX. *Part of a Letter from Mr.* Samuel Bowdich, *to Dr.* William Muſgrave, *F. R. S. giving an Account of a Woman who had lain ſix Days covered with* Snow, *without receiving any Nouriſhment*, &c.

Chardſtock, February 15. 1708-9.

Joanna Crippen of *Chardſtock* in *Dorſet*, going from hence on the 24th of *January* laſt (being *Chard* Market) to her Maſters for Work, ſhe being a Spinner of Yarn or Wooſted, and coming homeward with ſome of her Neighbours, it ſnowing very hard, and being very deep, was forc'd into a poor Cottage for Shelter, deſiring ſhe might abide there in the Chimney-corner for that Night, offering a Penny to the Woman of the Houſe, which ſhe refus'd. The Perſons that came with her, went to their reſpective Places of Abode, which were not far from the Place where ſhe begg'd to lye; ſo that ſhe was alone, and had almoſt a Mile thence to her own Home, having no manner of Suſtenance with her (as I noted before in my former) only á quarter of Tobacco, a Pound of Wooſted Yarn, and three Pence in Copper, not ſo much as a Bit of Bread, Bisket, or the like. And being (as you may judge) forc'd out of this Place, was conſtrain'd to travel, as well as a poor tired Creature could, towards her own Home; but going not far from thence, was met with by a Man of our Pariſh, whoſe Name is expreſs'd in the Narrative; who ſeeing her

tumbling in the Snow a distance off, as he was going to his Home, and finding her lying in a Ditch, help'd her up, and bid her observe to go in his Track, which he observ'd she did indifferently well. But she had not gone a quarter of a Mile, before she was forc'd to lye down under a Hedge, having lost one of her Shoes, and her Cloaths, which were very mean, were with the Brambles and Thorns torn almost quite off her Back: In which Place she lay from *Monday* Evening about Six a Clock, until *Sunday* following about Four in the Afternoon, and then was discovered by sundry of our Neighbours, who went out with Poles, Shovels, *&c.* to search for her; and after some time spent in it, at last found her buried in four Foot of Snow or thereabouts, it being more than so much higher before the Thaw. One of the Men with his Pole thrusting at her, cry'd out, She was there; then the rest advanced up, and opening the Snow, one of the Men said, She was Alive. She immediately spoke, and beg'd he would not poot her too hard, (as she expres's'd it) for she was almost naked; and desired that some of the Women would come to her and take her forth, which accordingly was done; they finding her without Stockings or Shoes, an old Whittle about her Shoulders, with a large Hole in it, which she had eat through; the Snow melting down on her, which she drank to quench her Thirst. From thence she was brought near my Habitation, where the best Care has been taken of her. She had a Mortification on one of her great Toes, which now is in a good way of Recovery; and she now is very Hearty, and in a fair way of a perfect Recovery.

She was very sensible at the first taking her out, and still continued so; she knowing every Body perfectly well. Her Tobacco and Three Pence were in her Pocket. Sir, You may assure your self, she had no manner of Food with her, as Bread, or any Eatable whatsoever. I have been

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Fig. 1.

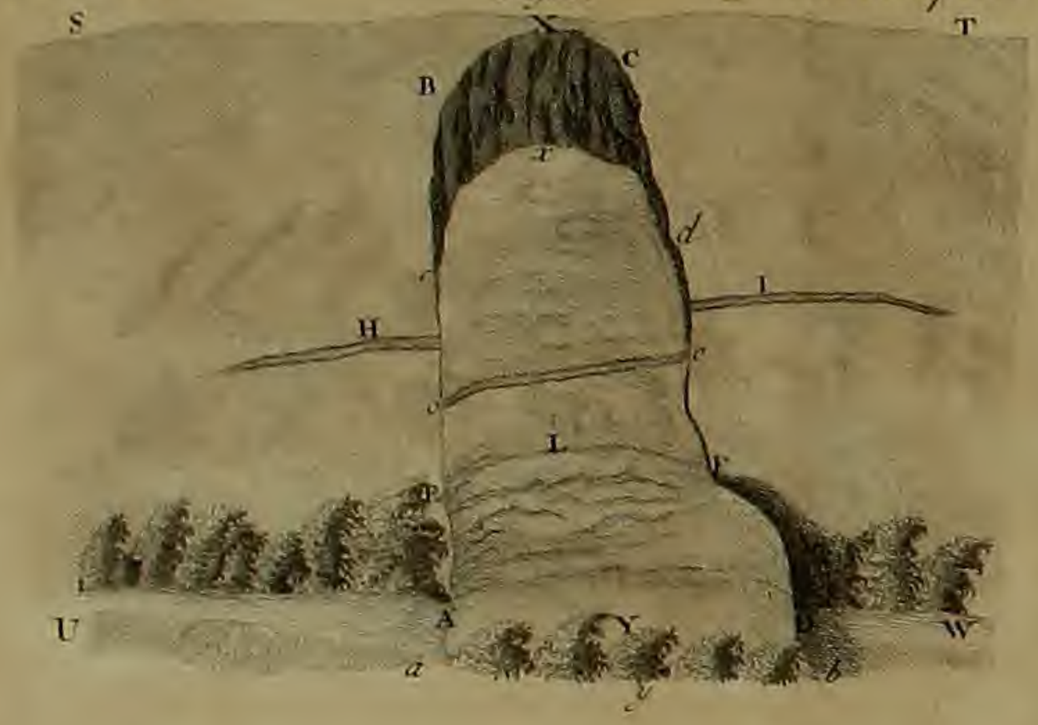


Fig. 5.

Fig. 6.

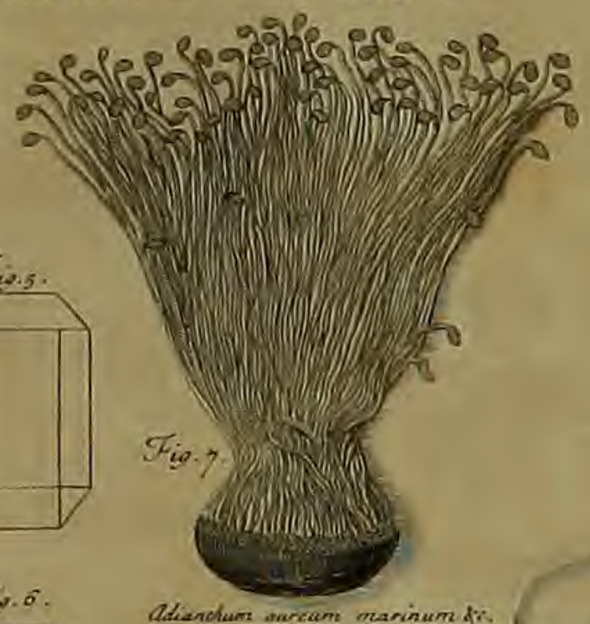


Fig. 7.

Adianthum aureum marinum &c.

Fig. 9.

Fig. 10.

Fig. 8.

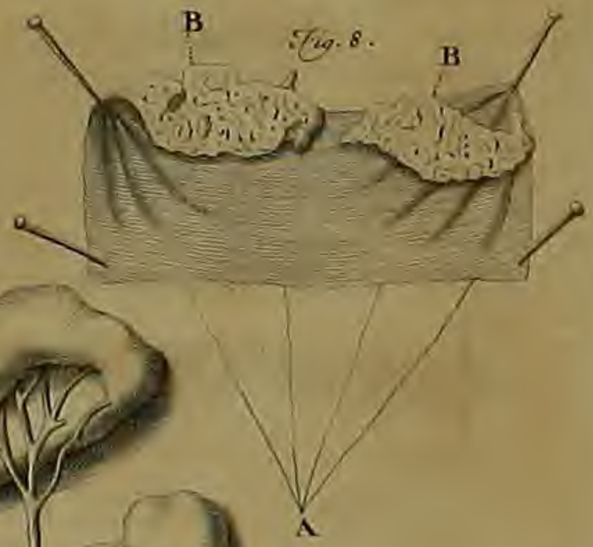


Fig. 12.

Fig. 13.

Fig. 14.

Fig. 2.

Fig. 4.

Fig. 3.

Fig. 11.

N. I. de Gude fc.

been concerned with her ever ſince ſhe was brought hither; ſo that you need not make a doubt of the Truth of it. I ſhall refer you to the other Narrative, ſubſcribed by two Neighbouring Miniſters, Church-Wardens and Overſeers, with many others who were preſent at the finding her; which I judge will ſoon be publiſhed in Print. I am, *&c.*

XXXI. *An Account of the Subſiding, or Sinking down of Part of a Hill near* Clogher *in* Ireland. *Communicated by the Right Reverend the Lord Biſhop of* Clogher, F. R. S.

LET *S. T.* in *Tab.* VI. *Fig.* 1. repreſent part of the Ridge of an Hill, gradually riſing from *S* to *T*, for near half a Mile; and *S. T. W. U.* the North ſide of the Hill, with a Declivity from *S.* to *U.* and from *T.* to *W.* The Perpendicular Height at *X.* to the Plain of the Bottom at *Y.* 150 Feet, and the Slope Line or *Hypotenuſe X. Y.* 630 Feet. *Tab.* VI. *Fig.* 1.

The Declivity pretty uniform from *X.* to *L*, and from *L.* to *Y.* conſiderably ſteeper: The Bank *A. E. F. D.* overgrown with Shrubby Wood: All the Ground on the ſide of the Hill being firm, green, and Arable; of a mix'd Soil, Clay and Gravel, but more Clayey.

On *Tueſday* the 10th of *March*, 1712-13. in the Morning, the People obſerv'd a Crack in the Ground like a Furrow made with a Plough, going round from *A.* by *B. C.* to *D.* They imputed this to (what they call) a Thunderbolt; becauſe there had been Thunder and Lightning on *Monday* Night. But on *Tueſday* Evening

an hideous dull Noiſe raiſed their Curioſity; and they obſerv'd that the whole Space *A. B. C. D.* containing about three *Iriſh* (i. e. 4 ¾ *Engliſh*) Acres, had been all Day in a gentle Motion: And the Noiſe continued all Night, occaſion'd by the rubbing of Buſhes, tearing of Roots, rending and tumbling of Earth. The Motion ceas'd on *Wedneſday* after Noon; when they ſaw the Buſhes on the Bank *E. F.* were remov'd, ſome ſtanding and ſome overthrown, to the plain Meadow *Y. y.* The geeen Ground above *E. F.* when it came to the top of the ſteep Part at *E. F.* rent with hideous Chaſms, ten, fifteen, or twenty Feet deep, and tumbled down in Rolls of a Yard or two thick, and ten or twenty long and broad; not unlike a ſmooth Water breaking over a Cataract, and tumbling in Waves below.

There was a Precipice at the Top *X. x.* 65 Feet Perpendicular, making the Slope Line *X. x.* 126 Feet. The Ground from *x.* to *L.* was made more level, the whole Perpendicular Height of *x.* not exceeding the Plain of *L.* above 30 Feet; but the Ground at *L.* in the whole Line from *E.* to *F.* was mounted above 20 Feet higher than the unmoved Ground on either ſide at *E.* and *F.* and the Height of *L.* above the Plain of *y.* is 55 Feet.

There was a Ditch *H. I.* went croſs the Ground; which being broken off at *o. o.* is removed together with the moving Part 34 Feet lower down than the immoveable; but at the Bottom *y.* it is tumbled 60 Feet over the Plain Meadow. The Breadth at the Bottom *a. b.* is 400 Feet, and at *c. d.* about 300.

The whole Face of the Precipice *X. x.* is of a blue Clay, mix'd with many little blue Stones. The Mettal is very hard when dry; but upon any Rain ſoftens to a kind of Mortar, without the Degree of Toughneſs and Stiffneſs that is Natural to Clays. It is very much like that Gravel or Sand (as they call it) which is ſomewhat of a grey

grey Marly Nature, and with which of late they ſo much improve the Plow'd Land in this Country.

About *x.* there are Chaſms or Gapings full of Water, which make a Rill down the *Hiatus B. E. A.* but in no greater quantity than might have been expected from a Well ſunk to a leſs Depth. Though I was told that there were Holes in the higher Mountains, that received Water under Ground; yet I can find no ſuch Thing, nor any Symptoms of a Current under Ground, either where it enters or riſes, in all the Neighbouring Ground for ſome Miles.

It ſeems to me that there has been no Vacuity under Ground to receive the ſubſiding Earth; for what the Bank *E. L. F.* is raiſed higher, and what is tumbled down to the Plain *a. b.* may very well compenſate the Subſiding at the Precipice *X. x.*

But I forgot to mention, that before the Rupture the Declivity from *X.* to *L.* was not altogether uniform, but was Hollower where *x.* is now, than the adjacent Parts: It might have been, by the deſcription I have from the People, 10 Feet deep in the Middle, and 100 Feet Diameter; and they have a Tradition, that this was made by a Subſiding before the Forty one Wars, (the oldeſt *Epocha* the Country *Iriſh* know.)

It lyes in the Lands of *Slat-beg*, two *Engliſh* Miles S. W. of *Clogher*, on Mr. *Mowtray*'s Eſtate.

I have enquired diligently of the Neighbours, if they found any Shocks or Indications of an Earthquake, but don't find the leaſt appearance of any.

They impute it to the great and conſtant Rains we have had laſt Harveſt and Winter, which have ſoak'd and ſteep'd all the Ground, but cannot gueſs after what manner they ſhould produce this Effect; for it is impoſſible any Water ſhould ſtand on the Ground, or in the Vicinity, it being all on the Declivity of the Hill.

XXXII. *An*

XXXII. *An Account of ſome ancient Trumpets, and other Pieces of Antiquity, found in the County of* Tyrone *in* Ireland. *In a Letter from* Francis Nevill, *Eſq; to the Right Reverend the Lord Biſhop of* Clogher, F. R. S.

Beltirbet, Decemb. 29. 1712.

My LORD,

IN my laſt I gave your Lordſhip an Account of ſome Urns found in different places in the North, which came to my view ſince I have had Reſidence in it. I promiſed then to ſend your Lordſhip a Sketch of ſome Trumpets found in the lower Barony of *Dungannon*, in the County of *Tyrone*, about ſeven Years ago: There were eight of them found together, four of one Make, and four of another; two of which I have now by me, the Draughts of which I here ſend, as repreſented in fig 2. and fig. 3. They are of caſt Braſs, of the thickneſs of an *Engliſh* Half-Crown.

Tab. VI. *Fig.* 2. Fig. 2. is 24 Inches long, according to the Turn or Arch it makes, and is 3 Inches in Diameter at the large End, and at the ſmall End it is ſolid for about two Inches, with a Loop at top to hang it by, and another Loop between the ſolid part and the Mouth-piece. The Mouth-piece is Oval, 5 Inches from the ſolid End, one Inch and three quarters long, and one Inch wide: The ſides thereof are ſmooth, round, and even, eaſy for the Lips of a Man, but will not admit of any ſound by Blaſt as a Horn doth, but by the articulate Voice of tooting

ing it will: One may raiſe his Voice in it to the higheſt Pitch, and bring it the deepeſt Baſe.

Fig. 3. is 26 Inches long, one Inch wide at the ſmall End, and three Inches at the other; but ſeems to be imperfect for want of a Mouth-piece; the ſmall End ſeems to be fitted to receive one. On the Back at *a.* there is a Hole, and another under the Moulding at *b*; the firſt I believe was to faſten the Mouth-piece, the ſecond I imagine was to ſtop or open with the Finger to alter the Sound at pleaſure. But as it is now, it cannot be ſounded; for it is no way fitted for the Mouth, it being thin and ſharp; which will be beſt underſtood by the Figure. *Tab.* VI. *Fig.* 3.

I cannot find in any *Iriſh* Story, or by Tradition, any Account of this ſort of Trumpets, nor indeed of any other; from whence I gather they are of great Antiquity: For had they been of uſe at, or ſince the firſt of the *Engliſh* Conqueſts, there would have been ſome Hints of them. And therefore I do conclude they were of uſe when the Country was Pagan, and not in Martial Affairs, but by their Prieſts at their Funeral Rights when they buried their Dead, and bore a part with thoſe who cryed at thoſe Funerals, or made an howling ſort of a Noiſe; which ſort of Noiſe is uſed among the Natives to this Day. But I refer this to thoſe who may have met with ſome Account that I have not.

Fig. 4. is an Inſtrument of much better Mettal, being fine Gold; but what to call it, or of what uſe, I never could meet with any could tell me. There have been 5 found in different places, three of which I have ſeen ſince I came to this Place. One was found near *Coothill*, in ſcowring a Ditch, under the ſide of a large Stone; which Stone was one of three which were placed triangular-wiſe; whether ſet in this form as a Mark to find this thing when hid, or whether for any other uſe, I cannot gueſs; but I have ſeen Stones in *Tab.* VI. *Fig.* 4.

ſeveral

ſeveral Parts of this Kingdom ſet in this Order. It is reported, that there were ſome other pieces of Gold found with this, but I could not ſee them: One, I was told, was ſomewhat like a Scepter, about 18 Inches long; and another was round like a large Medal, as thick as two Crown pieces, and as broad as the Palm of a Man's Hand, with ſtrange Characters on it. But whatever they were, the poor Man that found them I believe got but little by them; for this, of which I have here ſent the Draught, was ſold at the Market of *Coothill* for a quarter of a Pound of Tobacco, and afterwards at *Dublin* for Twenty three Pounds; where I ſaw it at the Goldſmiths. Its Beauty and Colour ſurpaſſed any Gold I had ſeen: It had been caſt, and not wrought with the Hammer. The two Cones were two Inches in Diameter each, and two Inches aſunder from each other. The Bow or Handle was made like an Arch (as you ſee in the Figure) about a quarter of an Inch thick: The Handle was round, tapering towards both Ends, where it was fixed to both the Cones. The Goldſmith told me, that when he had wrought part thereof, he could not bring the Gold to the right Colour again, tho' it was in fineneſs equal to our Standard. This could be no Ornament for the Body; perhaps it might be of ſome religious uſe; but whether Popiſh, or Pagan, I leave to better Judgments.

FRAN. NEVILL.

XXXIII. *Part of a Letter from Dr.* Fred. Slare *to Dr.* Hans Sloane; *concerning a Perſon who had a new Set of Teeth after* 80 *Years of Age; with ſome Obſervations upon the Virtues and Properties of Sugar.*

SIR,

I Have had Reaſon to give a great Character of Sugar, on account of ſome extraordinary effects it ſeem'd to have on my Grand-Father 40 Years ſince. He made it his daily practice to take or lick up as much Sugar as his Butter ſpread upon Bread would receive, for his conſtant Breakfaſt, unleſs he happened to exchange it for Honey ſometimes. He frequently ſweetned his Ale and Beer with Sugar: He had Sugar put to all the Sauces he uſed with his Meat. He had all his Teeth in his Mouth at 80 Years, ſtrong and firm; never had any Pain or ſoreneſs in his Gums, or Teeth; never refuſed the hardeſt Cruſt. In his 82d Year one of his Teeth dropt out, and ſoon after that a ſecond, which he put into my Hand, and was one of the fore-Teeth: He bid me feel the Cavity, where I ſtruck my Nail upon a Bone. In ſhort, all his Teeth came out in two or three Years, and the young ones filled up their room: He had a new Set quite round. His Hair from a very candid white became much darker. He continued in good Health and Strength, without any Diſeaſe, and dy'd in his 99th or 100th Year, of a *Plethora*, as I gueſs, for want of Bleeding. This is no Romance: He was a *Bedfordſhire* Gentleman of an old *Engliſh* Family; and the caſe well

known. This reconcil'd me much to vindicate Sugar, which I have done formerly before the *Royal Society*; and have ſhewn the unjuſt Calumny of the famous *Willis* againſt Sugar, who charges it with a Corroſive Liquor, as bad as *Aqua fortis*; He calls it *Aqua Stygia*. I examin'd it, and found the Charge unjuſt; That Sugar contain'd no worſe ſubſtance in it, than Milk, and Honey, and *Manna*, nay even Bread itſelf. The Experiments were approv'd of, and are in your Journals.

Some Years paſt I ſhew'd Dr. *Liſter* the Figure that Sugar did naturally make, or ſhoot into, and would have had him deſcribe it, and add it to thoſe curious Cuts of Salts before his Book of Mineral Fountains; but we could not then well expreſs the Figure, which I have ſince been able to do more accurately. For the difficulty lies here; all other Salts ſhoot or cryſtallize, and make their Figure in a cool Place; but Sugar will cryſtallize only in a hot Stove, and is more apt to be compounded, and not to ſhew its true primitive Texture. Thus it happens to Snow, which in its true ſimple ſhape is an Hexagon; but cannot be always diſcover'd ſingle. This is yet more eaſy to be accounted for than Snow; and we have been able to chuſe ſuch parcels of that Sugar call'd Candy, as do repreſent the following Figure, being a Priſm, as you may ſee by the Figure. I never queſtion'd but that it was a true Salt, having all the Properties of a Salt; and therefore made many unſucceſsful Experiments before my Acquaintance with Sugar Bakers. I have conſider'd the Virtues (and Vices of Sugar, if there be any) for many Years, and have ſome few Conſiderations on that ſubject; *&c.*

Tab. VI. *Fig.* 5 *and* 6. Fig. 5. *Shews the Form of the Cryſtals or Salts of Sugar, having two* Baſes, *oppoſite, equal, and parallel; the other are Parallelogramms.*

Fig. 6. *Shews the* Baſis *of the preceding Figure.*

XXXIV. *An*

XXXIV. *An Extract of a Letter from the late Mr.* Edward Lhwyd, *to Dr.* Richard Richardſon; *containing ſome Remarks on an Undeſcribed* Plant, *and other Particulars, obſerved by him in* Wales.

Gogerdhan in *Cardiganſhire*, *April* 18. 1699.

SIR,

I Have here ſent you the Draught of a remarkable Sea Plant, which we met with a dredging for Oyſters near *Lhan Danwg* in *Meirionydſhire*. The whole Plant is of a Straw colour, and much of the bigneſs the Figure repreſents it. The Stems are hollow, and filled with a kind of thick reddiſh Liquor, as much like Blood [or Gore] as the Juice of Plants; inſomuch, that it ſeems referrable to the *Zoophyts*. If you preſs theſe Stems at the Bottom betwixt your Fingers, the red Liquor is forced up, and cauſes the drooping Flowers [or Seed-veſſels] to mount erect. *Tab.* VI. *Fig.* 7.

We have lately diſcovered a ſort of Marble in that County, which when poliſhed repreſents a number of ſmall Oranges cut acroſs; the reaſon whereof is an infinite quantity of *Porus* [or *Alcyonium*] ſtuck through the Stone. This might ſerve very well for Inlaying Work, as Tables, Windows, Cabinets, Cloſets, *&c.* and would make curious Saltſellers.

If you are acquainted with any Gentlemen that deal in Alum or Copperas, you may pleaſe to acquaint them

that *Wales* affords good quantity of each, if they judge it worth their while to put up any Works there; particularly *Pembrokeſhire* and *Caermarthenſhire* for the former, and *Meirionydſhire* for Copperas, where I ſaw a great Vein of *Pyrites* ſtrongly impregnated.

EDW. LHWYD.

XXXV. *A Relation of a* Scirrhous Tumour, *included in a* Cyſtis, *&c. By Mr.* Richard Ruſſell, *Surgeon, at* Lewes *in* Suſſex; *and communicated by Mr* William Cheſelden, *Surgeon, F. R. S.*

AUGUST the 18th, 1713. I was ſent for to Mrs. *Smith*, who had been reduc'd very low by a Fever, which from her Cough, ſharp Pain under her Breaſt, and other Symptoms was judg'd Pleuritick.

But upon having a Diſcharge from her painful Breaſt, of a thin Gleet, all Symptoms vaniſhed.

When I ſaw her firſt, the Liquor diſcharg'd by a ſmall Pin-hole near the *Papilla*, was little more than would have wet a Handkerchief four times double.

Examining of the Breaſt, I found a large Tumour, that lay deep, yielding to my Fingers, and paſting like Dough.

I ſearch'd the Abceſs with my Probe, and twiſted out with it a Matter like Saw-duſt, or Brann, mix'd with Hair.

Upon laying open the Breaſt, I ſeparated a Cyſtick Tumour, which weigh'd eight Ounces, and contain'd a ſolid Matter like the above-mention'd, mix'd with a Body like Hair.

Upon Enquiring into the manner of its coming, ſhe told me, that eight and thirty Year ago, ſhe receiv'd a Bruiſe in that Breaſt by a Fall from a Horſe, which was attended with great Pain and Fluxion; inſomuch, that the Veins of her Breaſt appear'd Varicous and Turgid, as in a Cancer; but her Pain ceaſing, they ſunk, and left an Indolent Tumour in her Breaſt, ſuppos'd by her Surgeon to be a true *Scirrhus*: Since which time it hath always continued nearly in the ſame State, without pain, encreaſing very little in Magnitude, but obſtructed in ſuch a manner that ſhe could not nurſe her Child with that Breaſt.

The *Tunic* was pretty thick, nouriſhed with very ſmall Veſſels, but had form'd a *Scirrhus* of the Glands it adher'd to, by keeping up a Diſtention of Parts, till there was a Coheſion of their Membranes and Veſſels.

I make no doubt, but this was a Body of diſeas'd Glands, which had ſuffer'd a Colliquation by ſome extravaſated Fluid, and that the Membrane of the Tumour was their Proper *Tunic*.

After this manner all our Tunicated Tumours ſeem to be form'd; for when an Obſtruction proceeds to Extravaſation, there is a Liquor pour'd out which conſiſts of ſuch Particles, that by degrees makes a Colliquation of the Glandulous Fleſh, which is not very ſenſible of Pain; and by degrees the *Capſula* becomes diſtended with a Matter of a very different Conſiſtence,

which

which gives the Name to the Tumor, either *Steatoma*, *Atheroma*, or *Meliceris*.

Thus pour Oyl of Olive on Spirit of Nitre, and your Oyl firſt becomes a little hardned, then of the Colour and Conſiſtence of Marrow, till by degrees it is hardned into a white Fat, reſembling that of Animals.

The Poſſibility of this Colliquation and Digeſtion, we may the eaſier be induc'd to believe, if we conſider how often we find the Glands of the *Viſcera* petrified, without any degree of Pain, or the Membrane in any Meaſure deſtroy'd: The Truth of which, every one that hath been converſant with the Diſſection of Morbid Bodies, muſt have ſeen.

XXXVI. *An Extract of a Letter from* Francis Nevill, *Eſq; to the Lord Biſhop of* Clogher, *F. R. S. concerning a Quarry of Marble diſcover'd by him in the County of* Farmanagh *in* Ireland.

Belturbet, October 14. 1712.

My Lord,

MR. *Cole* and I were lately in the Mountains, where I had diſcovered a Marble Quarry. The Country wherein it lyes is ſo ſtrange for the Natural Wonders in it, that 'twould make a little Hiſtory to deſcribe all that is to be ſeen. It lies on the North-ſide of *Calcagh*, in the Pariſh *Kilaſher*, and County of *Fermanagh*. There are Marble Rocks, whoſe Perpendicular

cular Height is fifty or ſixty Feet, diſcovered by Subterraneous Rivers, which, by degrees, have waſh'd away the Earth and looſe Stones, and diſcovered theſe mighty Rocks. There are many great Pits fallen in on the ſides of the great Mountain; ſeveral of them in a ſmall Compaſs of Ground, ſo that it is dangerous travelling near them. There are many Caves form'd, ſome very large, the Sides and Arches of Marble; ſome of a Liver-colour, varied with white in many little Figures; ſome of a light Blue varied with White; but I could find no entire White or Black among them.

XXXVII. *Remarks upon the* Plague *at* Copenhagen *in the Year* 1711. *Communicated by* John Chamberlayne, *Eſq*; F. R. S.

THIS Diſeaſe began to ſhow itſelf firſt in this City, about the beginning of *July*, 1711. It increaſed 'till the beginning of *September*; after which it diminiſhed by little and little to the End of the Year, at which time it totally ceaſed.

It appears, that before this Diſtemper there were about Sixty Thouſand Souls in *Copenhagen*: From whence they infer, that there is Born every Year about Two Thouſand, and that there Dies nearly the ſame Number; which being Multiplied by Thirty makes Sixty Thouſand.

In the Six Months which this Diſtemper continued, it is thought it carried off about 25000 Souls. It is true, the Publick Liſts reckon but 22535; but it is agreed by all, that in the laſt Week of *Auguſt*, and the two firſt Weeks of *September*, each of which carried off above

2300

2300 Souls, there died a great many, of which there was no Notice taken.

Almoſt the very ſame happened two Years before at *Dantzick*; where, before the Plague broke out, there died Weekly from 45 to 50; but the Number of the Dead increaſed by degrees to the beginning of *September*; ſo that in the firſt Week of that Month there died 2205 Souls, in the ſecond Week 2070, and in the third 2075. After which the Mortality decreaſed to the End of the Year.

It is obſervable, I. That there were ſome Houſes which eſcaped the Infection; but that there were few where it did not carry off more than one or two Perſons; and that there were many in which it did not leave a Soul alive.

II. That generally ſpeaking, this Diſtemper was moſt fatal to the meaner ſort of People; there ſcarce dying any Perſon of Note; but on the contrary a great number of the Poor. Which may be attributed to ſeveral Cauſes:

The firſt, and moſt general of which, is their naſty manner of Living. The ſecond is, that this ſort of People live very cloſe together, and as it were heaped one upon another; ſo that ſometimes there are four Families in one Room. The third is, the fooliſh Curioſity they have of ſeeing the Dead Bodies. And fourthly a great many of them are ſo biggotted to the *Turkiſh* Notion of Predeſtination, that they ſay, if it pleaſes God that I ſhould die of this Diſeaſe, I ſhall not eſcape it; and if it be his pleaſure that I ſhall live, I can't die: And upon this Notion they go abroad every where, and ſo catch the Infection. There are ſome of 'em alſo, which make no ſcruple of lying in the ſame Beds, where others have dy'd.

The

The three ſorts of Trades, of which there died moſt, were Coffin-makers (which took meaſure of the dead Bodies) Surgeons, and Shoe-makers.

The Care that was taken, and the Medicines that were uſed, did great Service. I was told that *Theriaca* did little good; and they obſerved the ſame alſo at *Dantzick*.

XXXVIII. *Some Anatomical Obſervations. By Mr.* William Cheſelden, *Surgeon*, F. R. S.

FIG. 8. *Tab.* VI. ſhews the beginning of the *Aorta*, or great Artery, from the Heart of a Woman who died of a Dropſy. *A.* is the *Aorta*. *B. B.* two Chalk-ſtones which poſſeſſed the Place of the Semilunar Valves. The left Ventricle of the Heart was dilated to twice its Natural Magnitude. We ſuppoſed that theſe Stones occaſioned the Dropſy, by obſtructing the Valves, and hindring a regular Diſtribution of the Blood. *Tab.* VI. *Fig.* 8, &c.

Fig. 9. ſhews a Bone taken from the *Falx*, or firſt Proceſs of the *Dura Mater*, of a Man who died of violent Head-aches.

Fig. 10. ſhews a Bone taken from the between the Ventricles of the Heart of a Man, who died Hydropic and Tabid. In this Body the whole *Pericardium* adher'd to the Heart.

Fig. 11. ſhews the Optick Nerves; the right Nerve being waſted and diſcoloured: The Eyes both appeared to be very good. I had not an opportunity of inquiring into the Caſe of this Perſon; but I ſuppoſe it muſt have been a *Gutta Serena*.

I opened another Eye of a Man who died of that Diſtemper; in which I found that part of the Nerves, which is within the *Cranium*, cruſhed flat by the anterior Lobes of the Brain, their Ventricles being full of Lymph.

Fig. 12. ſhews three Spleens taken from one Body.

Fig. 13. Two Spleens taken from a Man.

Fig. 14. Two Spleens taken from a Woman.

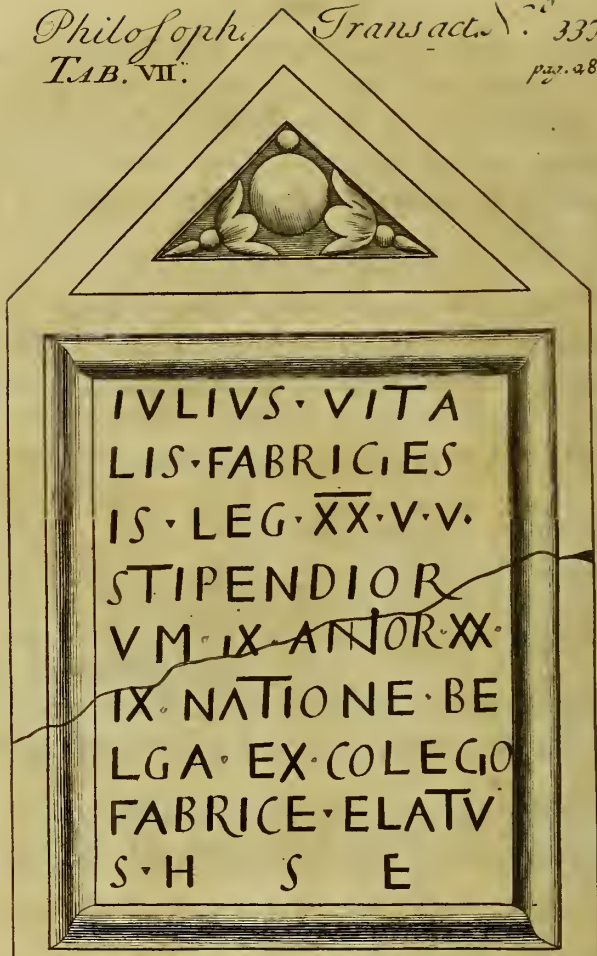
N. B. That in all theſe three Caſes of the Spleens, each had proper Veſſels, but the Arteries only are there expreſs'd; and that the Spleens in each Body taken together were but equal in Magnitude to the one we uually meet with.

A Heart, with the *Vena Azygos* inſerted into the right Auricle; and the Deſcending *Cava* coming round the *Baſis* of the Heart, above the *Aorta* and Pulmonary Veſſels, to enter the Auricle at the lower part with the Aſcending *Cava:*

An *Ureter* double two Thirds of its length next the Kidneys, and diſtended by Stones paſſing through it.

The *Tubæ Fallopianæ* impermeable, and without *Alæ Veſpertilionis*; the outer Ends being connected to the *Teſtes.*

XXXIX. *An*



Tabulam hanc, quæ repræſentat Julij Vitalis *Epitaphium, ad* Bathoniam, A.D. MDCCIIX *effoſsum, Antiquitatis ſtudio flagrantibus D.D.Q.*

Richardus Muſgrave,
Haſilburienſis.

XXXIX. *An Account of a Book, entitled,* [Julij Vitalis Epitaphium; cum Notis Criticis Explicationeq; V. C. Hen. Dodwelli, et Commentario Guil. Musgrave.] *Iscæ Dunmoniorum.* Sumtibus Philippi Yeo. MDCCXI.

IT is said of *Zeno*, that when He consulted the Oracle, as to what course of Life He were best to pursue, He received for Answer, Εἰ συγχωτίζοιτο τοῖς νεκροῖς, *si ad mortuos se adplicaret*; it being from Them, their Writings and other Remains, that the greatest part of Knowledge is derived to us; and what the Living furnish us with, is chiefly taken from the Monuments of the Dead.

Inscriptions are in this kind most valuable, as being for the generality *Originals of undoubted Veracity*; not subject to the Errors of Copying. The *Inscription* here publish'd, is of the greater value, for that it is the only one, as yet discover'd, any way relating to the *British Belgæ*.

You have, *Tab.* VII. the *Inscription*, with the Figure of the Stone, as it was dug up near *Bath*, 1708. and is now to be seen, set up in a Wall at the East end of the Church, in the Abby Green. *Tab.* VII.

I read it thus at length, according to our Modern way of writing Latin.

Julius Vitalis, *Fabricensis Legionis Vicesimæ Valerianæ Victricis, Stipendiorum novem, Annorum viginti novem, Natione* Belga, *ex Collegio Fabricensium elatus, hic situs est.*

The Learned Mr. *Dodwell*, after his *Critical Notes* on this Inſcription, divides his *Explication* of it into Ten Sections, which have the following Titles.

SECT. I. *Legionum ſingularum Fabricenſes* ſub *primis* duntaxat *Imperatoribus*.

II. *Alij* Fabricenſes *hi a* Fabricenſibus Notitiarum, *et* Codicis *utriuſq;*, *tam* Theodoſiani *quam* Juſtinianei.

III. Leges *de* Fabricenſibus *(etiam poſt* Conſtantinum M.) *non* ſoli Officiorum Magiſtro, *ſed* Comiti *etiam* Sacrarum Largitionum, *et* Præfecto Prætorij *inſcribi ſolitæ*, uſq; ad A. D. 474.

IV. *A Temporibus* Conſtantini, *et initio* Diocletiani, Britannia *ſub* Præfecto Gallicani Prætorij, *qui proinde* Fabricæ militaris Britannicæ *Poteſtatem habebat*.

V. Carauſius *et* Allectus *in* Britannia Auguſti Fabricæ Britannicæ *proſpiciebant per* ſuorum Prætoriorum Præfectos, *non* Gallicanum. *Inſcriptio hæc ſerior* Ptolemæo, *antiquior tamen* Dionis *Conſulatu*, A. D. 229.

VI. *In ipſa Urbe* Bathonienſi *erat* Fabricenſium Legionis XX^{æ}. Collegium.

VII. Legio II^{a}. Aug. *nondum in agro* Monumethenſi, A. D. 211. *cum excederet* Sept. Severus. *Eoq; proinde* anno antiquior *erat* hæc, *fortaſſis*, *Inſcriptio*.

VIII. *Fieri poteſt*, *ut* Fabricas duplices, *tam* Armorum *quam* Machinarum Bellicarum, *complexum fuerit* unicum *hujus Inſcriptionis* Fabricæ Collegium.

IX. Na-

IX. Nationis *nomine* Patria *deſignatur* Julij Vitalis, *quæ in* Belgarum *territorio fuerit, non* Gallicorum, *ſed* Britannicorum.

X. *Ad* honorem Julij Vitalis *faciunt, quæ de eo in hoc monumento dicuntur.*

To this *Explication* of *Julius Vitalis* his *Epitaph*, the ſame learned Gentleman adds two other *Inſcriptions*, one found not long ſince at *Pozzuoli*, the other at *Baiæ*, with *Explications* of them.

After a Letter of Compliment, to Dr. *Nicholas*, late Warden of *Wineheſter College*, the Editor produces his *Commentary* on *Julius Vitalis* his *Epitaph*. They are both divided into Sections, in the following Order.

Sect. I. IVLIVS. VITALIS.

Theſe Names are enquired into, and Inſtances given of many Perſons having this Sirname; and of thoſe ſome of Quality, now living in *Italy*.

Sect. II. FABRICIESIS.

It is here obſerved, that the *Romans*, for the ſake of eaſy Pronunciation, uſed ſometimes to interpoſe an I, and omit N. That they, being great Maſters of the Art Military, had *duum generum Officinas Armorum, quarum hæ Legionariæ, illæ Opidanæ erant*. The former came at laſt to be call'd *Fabricæ*, as appears from *Hyginus*, allowing, in every Camp for three Regions, room for a *Fabrica*. (Vide Antiq. Rom. a Cl. Grævio edit. Vol. X.) From *Fabrica* comes *Fabricenſes*, which is read in the *Theodoſian* Code, in a Law made *Leontio & Salluſtio Coſſ.* (A. D. 344.) And becauſe the Author has not met with this Word earlier than this Year, He does not place *J. Vitalis* much above this time.

Sect. III.

Sect. III. LEG. XX.

The Author here delivers it as probable, That this was one of *Antonye*'s Legions, which amounted, without Interruption, to the Number XXV. inclusive. The *Insignia* for the first Cohort of this Legion, and two such as belong to the other Cohorts, are, from a Coyn of *Ursinus*, here represented in a Cut.

Under this head it is affirmed, That there were several *Vicesimæ Legiones*, but how many is uncertain. The several Names of this Legion, as they lye scatter'd up and down in Authors, are recited. A short History of it produc'd, particularly of its coming into *Britain* under *Plautius*, about the Year 43. That Invasion one of the most remarkable *Epochai*, that ever concerned this Island. *Græcina*, Wife to *Plautius*, probably the first *Christian* in *Britain*. This Legion was in the last Battel with, and overthrow of *Boadicia*: Was under the Command of *Roscius Cælius*, and after that of *Agricola*: Had its chief Station at *Deva* (*Chester*,) which had its Increase, if not its Rise, from this Legion, about the Year 80. Near the River *Deva*, He thinks the *Cangi* were seated; and proves, That they were overcome by *Agricola* in the first Year of *Domitian*'s Reign. This Legion in *Britain* in the Reign of *Adrian*. The *Vexillarii* of this Legion built part of that Wall, between *Dunbritton* and *Edenborough Friths*. *Ptolemy* and the *Itinerary* of *Antoninus* mention this Legion, as settled at *Deva*: (*Chester*.) It was there in the time of *Commodus*, and at *Crowdundale-waith* It sided with *Carausius*, against *Maximinian* and *Diocletian*. The *Romans* did often place Coyns, under their Altars, and other Buildings. Of the XXth Legion, part had their Station at *Bath*; and was there about the middle of the 4th Century. This Legion continued in *Britain* about three hundred Years; consequently,

ſequently, muſt be of great uſe in communicating to the *Britains*, the many Arts and Sciences, they learnt of the *Romans*.

Sect. IV. V. V.

Tho' Learned Men agree, That the latter V ſignifies *Victrix*, an Epithet common to this with ſeveral other Legions; there is among them much controverſy, what it meant by the former V. ſome reading it *Valens*, others *Valeria*, others *Valeriana*. The Author is of the latter Opinion, urging, That as the Legion, called by *Dio* Κλαυδίειοι, is by *Tacitus*, more than once, term'd *Claudiana Legio*; ſo this Legion, term'd by *Dio* Ουαλερίειοι, ought, in his Opinion, to be in *Latin* rendred *Legio Valeriana*: Eſpecially, if we conſider, That the word *Legio* affects to be joined with an Adjective ending in *ana*; of which He produces almoſt twenty Examples, and can produce many more: On the other hand, it does not appear to him, That *Legio* is in any good Author joyned with the word *Valeria*. He farther adds, That tho it be undoubtedly true, there was a Legion call'd *Valens Victrix*, (for this is evident from an Inſcription, reported by *Lipſius*, and others) yet there is no proof, That any Legion, having that Name, was ever in *Britain*. He enquires, how this Legion came to be call'd *Valeriana*, and how *Victrix*: And ſays, there is a longer Account of this Legion, than perhaps of any other, *viz.* up to 374 Years.

Sect. V. STIPENDIORUM. IX.

The yearly *Stipends* are here placed to expreſs the Years of Service, and ſhew, That *J. V.* ſerved nine Years in the Army.

Sect. VI.

Sect. VI. ANNOR. XXXIX.

This double N is very remarkable; rarely, if at all, to be met with in any other *Inscription.* The last Line, in the Ligature, is raised higher than ordinary, perhaps to include, for softness of Pronounciation, an I; and then the Word is to be read *Anniorum.* There are many Instances of this kind to be met with, in ancient MSS and *Inscriptions. Julius Vitalis* enter'd into the Service in the Twentieth Year of his Age; though the *Romans* generally lifted at Seventeen, and sometimes earlier. Coyns are mentioned, as proving Cifres to be of use among the *Romans.*

Sect. VII. NATIONE.

The first Vowel here, without a Line transverse, is according to Mr. *Cambden*'s Rule, a good Argument to prove, this *Inscription* not to be more ancient than *Severus*'s Age: There being, as that Learned Antiquary affirms, no such Form of this Letter, in this Island, before that time.

Sect. VIII. BELGA.

The *Belgæ* came out of *Germany*, and settled in *Gaul*; from whence a part of them invaded *Britain*, about the Time of *Diviaticus.* They landed in, or near the Bay of *Clausentum* (*old South-hampton*) and possest the Sea-Coast of *Hampshire*, as it is now call'd. Thence they march'd to *Venta* (*Wincheſter*) and gave it the Name of *Venta Belgarum*, and extended their Conquests farther, into the Countreys now known by the Names of *Wiltshire* and *Somerset.*

The

The *Cangi* could not inhabit any part of this *Belgium*, (as ſome learned Men have formerly affirmed, and others of late undertaken to prove;) for the Leaden Pigs, in number twenty, found ſome time ſince in *Cheſhire*, each having the following Inſcription,

IMP. DOMIT. AVG. GER. DE. CEANG.

That is,

Imperator Domitianus Auguſtus Germanicus de Ceangis, ſive Cangis,

Theſe *Laminæ Plumbeæ* do (I ſay) evidently prove the Victory of the *Cangi* to have been near the River *Deva*, where in all likelihood they were ſeated.

'Tis farther manifeſt from *Ptolemey*, they could not, at leaſt in his time, and according to his Geography, inhabit any part of *Belgium*, and this by an undeniable Argument. The Maritime *Belgians* near the *Iſle of Wight*, were overcome by *Veſpaſian*; whoſe Camp, now to be ſeen near *Chicheſter*, was capable of three Legions, that is, Thirty ſix thouſand Men.

Vitalis a Citizen of *Rome*, by virtue of *Caracalla*'s Conſtitution, if no other way. The *Britains* were ſometimes call'd *Romans*. *Veſpaſian* never overcame the *Dunmonij*.

Sect. VIII. EX. COLECIO. FABRICE.

The ſingle L is according to the Cuſtom of the *Romans*, which held as long as their Language.

C for G was alſo uſual with Them.

The *Fabrica Sacra*, or Office for making Arms of the greater ſort, for the Souldiery, is mention'd by *Paternus*; who lived under the *Antonines*. *Trajan* ſeems, firſt, to have built this ſort of Office; whoſe Oeconomy is here ſet forth; but, in *Britain*, *Adrian*, A. D. CXXI. Why we ought to read *Fabricenſium*. The *Bath-Fabric* had Ore and Fuel from the *Silures*, (*Gloceſterſhire* and *Monmouthſhire*) where *Adrian* ſunk an Iron-work: Of the Officer in the Army called *Armorum Cuſtos*. The *Armamentarium* at the Mouth of the old *Rhine*, very ancient: Its Communication, in latter Times, with our *Fabrica*. Not unlikely, but that the Legionary *Fabricenſes* were incorporated into the *Bath-College*. *Julius Vitalis* recommended Himſelf to the College, perhaps by his Humanity, Probity, and Urbanity. The Luxury of this XXth Legion, and of the *Fabricenſes* near *Bath*, manifeſt from their many Moſaic Pavements: Of which one is here deſcribed. *Vitalis* ſeems to have been *Præfectus Fabricenſium*, from the Honour done Him, by the whole College, in his Funeral and Monument.

Sect. X. ELATUS.

The true Signification of this Word, in oppoſition to *Sipontinus*. *Collegium*, in the pureſt *Latin* Authors, never ſignifies *a Place*.

Sect. XI. H S E.

The Riſe of *Notes*, *Singulæ*, or *Siglæ*. No Points in this Note, being of itſelf eaſily underſtood. The common way of Deciphering not difficult; and may be perform'd by one, who underſtands not the Language of the Writing. A way of writing propoſed, ſo occult, as not to be diſcovered. No *Digamma Æolicum* in any of the *Britiſh Inſcriptions*. Phraſes, as well as Words, have

have their Riſe and Fall. This of [*Hic ſitus eſt*] one of the moſt ancient.

The *Military Ways*, as now ſeen, are ſome of the moſt Magnificent Remains of the *Roman* Greatneſs; begun near *Bath*, under *Claudius*. The *Roman* Army in *Britain* under *Nero* 70000: which, after the Defeat of *Boadicia*, was in all likelihood employ'd in public Works, as Ways, *&c.* At *Bath* four Military Ways meet; in this *Quadrivium*, about a Mile out of the Town, near the *London-Road*, was a famous Burying-Place; in which *Julius Vitalis*, and ſeveral others, were buryed. Burying-Places moſt proper remote from Cities, and therefore recommended to more frequent uſe, after the Example of moſt wiſe Nations.

In the laſt Chapter the Author treats of the Orthography, Ornaments, and other Accidents of this *Inſcription*, ſetting forth, in particular, That as *Inſcriptions* beſt of all teach Orthography, ſo they are often moſt faulty in this reſpect. Points at firſt were uſed to diſtinguiſh Words. In this *Inſcription*, they are, where moſt perfect, Triangular, and placed near the middle of the preceding Letter. The *Roman* V was pronounc'd like our W; conſequently *Julius Witalis*. This Vowel was ſometimes pointed beneath, ſometimes Arch'd, as appears from MSS of a thouſand Years age, now to be ſeen in the *Bodleian Library*: contrary to the Opinion of *Cellarius*; who affirms, That the round bottom'd U, U, is not above a hundred Years ſtanding. This laſt Figure of this Letter taken from the *Runer*, as the other, V, was from the Greek ϒ. Of the mixing ſmall with great Letters; and mixing, in the ſame Writing, Letters of divers Alphabets. Lithotomiſts careleſs in dividing Syllables. Knowledge of the Antients beſt preſerved by *Inſcriptions*; which yet labour under great defects. The Uſe of this *Inſcription*.

The A. of this *Commentary* can't but take Notice, That it is not repreſented aright by the Editor of the *Bibliotheque choiſie*, *Tom.* XXV. *primiere partie.* For pagg. 225 and 6, He ſays, [*Belges, qui des Provinces ſeptentrionales du Continent des Gaules s'êtoient tranſportez en Angleterre, autour de Bath & Wells*] Whereas the *Commentary* affirms no ſuch thing, and in all likelihood *Wells*, and perhaps *Bath* too, is much later than the ſettling of the *Belgæ* in *Britain.* In the 2d place, He obſerves, That whereas the *Bibliotheque* affirms of the *Bath* Fabric [*ce que l' on avoit ignoré juſqu' à preſent*] the *Commentary* quite otherwiſe ſays, [*Fabricam* Aquis, *quod orbi literato jam diu latuit, fuiſſe* Calidis.] pag. 189. Laſtly, ſpeaking of the round bottom'd U, invented (as *Cellarius* affirms) about a hundred Years ago, This, ſays the *Bibliotheque*, is true, as to *Inſcriptions* [*Celà eſt vrai à l' egard des Inſcriptions.*] On the other hand, I take leave to affirm, *quod hujus contrarium eſt veriſſimum:* There being now to be ſeen in *Cornwall* an old Inſcription with a round U.

A N

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